



# EconicSD

Operating Instructions



## Symbols

### **WARNING**

Warning notes make you aware of dangers that can threaten your health or life as well as the health and life of other persons.

Observe the warning notes.

### **Environmental note**

Environmental notes provide you with information on environmentally aware actions or disposal.

 Notes on material damage alert you to dangers that could lead to damage to your vehicle.

 Useful instructions or further information that could be helpful to you.

▶ This symbol designates an instruction you must follow.

▶ Several consecutive symbols indicate an instruction with several steps.

(▷ This symbol tells you where you can find further information on a topic.

▷ ▷ This symbol indicates a warning or an instruction that is continued on the next page.

## Registered trademarks

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## **Welcome to the world of Freightliner Trucks**

Before you first drive off, read these Operating Instructions carefully and familiarize yourself with your vehicle. For your own safety and a longer vehicle life, follow the instructions and warning notes in these operating instructions. Disregarding them may lead to damage to the vehicle or personal injury.

Any damage to the vehicle which has been caused by disregarding the instructions will not be covered by the New Vehicle Limited Warranty.

The standard equipment and product description of your vehicle may vary, depending on:

- Model
- Order
- Country variant
- Availability

The illustrations in these Operating Instructions show a left-hand-drive vehicle. In right-hand-drive vehicles, the arrangement and location of vehicle parts and controls differ accordingly.

Daimler Trucks North America (DTNA) is continuously developing its vehicles.

Daimler Trucks North America (DTNA) reserves the right to introduce changes in the following areas:

- Design
- Equipment
- Technical features

Descriptions may therefore differ from your vehicle in individual cases.

The following are integral parts of the vehicle:

- Operating Instructions
- Maintenance or Service Booklet
- Service and warranty information
- Supplements relating to vehicle equipment

Keep these documents in the vehicle at all times. If you sell the vehicle, always pass the documents on to the new owner.

We wish you a safe and pleasant journey.

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## Operating Instructions

### Before the first journey

These Operating Instructions, the Maintenance or Service Booklet and the equipment-dependent Supplements are integral parts of the vehicle. Keep these documents in the vehicle at all times. If you sell the vehicle, always pass all documents on to the new owner.

Before your first journey, read these documents carefully and familiarize yourself with your vehicle.

For your own safety and a longer vehicle life, always follow the instructions and warning notes in these Operating Instructions. Disregarding them may lead to damage to the vehicle or personal injury.

Any damage to the vehicle which has been caused by disregarding the instructions will not be covered by the New Vehicle Limited Warranty.

### Implied warranty

- I** Follow the instructions in this Operator's Manual about the proper operation of your vehicle as well as about possible vehicle damage. Damage to your vehicle that arises from culpable contravention of these instructions is not covered by the Limited Warranty of the distributor named on the inside of the front cover.

### Vehicle equipment

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific deviations are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions. The equipment in your vehicle may therefore differ from that shown in the descriptions and illustrations.

All systems found in your vehicle are listed in your vehicle's original purchase agreement. Should you have any questions concerning equipment and operation, please consult a Freightliner dealer.

## Correct use

Observe the following information in particular when operating your vehicle:

- the safety notes in these Operating Instructions
- the technical data in these Operating Instructions
- traffic laws and regulations
- laws pertaining to motor vehicles and safety standards

There are various warning stickers on the vehicle. If you remove the warning sticker, you or others may not recognize dangers. Do not move the warning sticker from its original position.

### WARNING

Modification to electronic components, their software or wiring could impair their function and/or the function of other networked components. In particular, systems relevant to safety could also be affected. As a result, these may no longer function properly and/or jeopardize the operating safety of the vehicle. There is an increased risk of accident and injury.

You must not tamper with wiring, electronic components, or their software. You should have all work on electrical and electronic components carried out at a qualified specialist workshop.

### WARNING

Gases and fluids from substances that constitute a health hazard or react aggressively can escape even from securely closed containers. When transporting such substances in the vehicle interior, your ability to concentrate or your health could be affected during the journey. Malfunctions, short circuits or electrical component system failures may also result. There is a risk of an accident and fire.

Do not store or transport any substances in the vehicle interior which are hazardous to health or react aggressively.

Examples of substances that constitute a health hazard or react aggressively include:

- Solvents and DEF
- Fuel
- Oil and grease
- Cleaning agents
- Acids

## Protection of the environment

### Economic and environmentally aware driving

#### Environmental note

Daimler's declared policy is one of integrated environmental protection.

Our objectives are to use the natural resources which form the basis of our existence on this planet sparingly and in a manner which takes the requirements of both nature and humanity into consideration.

You too can help to protect the environment by operating your vehicle in an environmentally-responsible manner.

Fuel consumption and the rate of engine, transmission, brake and tire wear depend on the following factors:

- operating conditions of your vehicle
- your personal driving style

You can influence both factors. Therefore, please bear the following in mind:

Operating conditions:

- avoid short trips, as these increase fuel consumption.
- observe the correct tire pressure.
- avoid carrying unnecessary weight.
- a regularly serviced vehicle will contribute to environmental protection. You should therefore adhere to the service intervals.
- all maintenance work should be carried out at a qualified specialist workshop.

Personal driving style:

- do not depress the accelerator pedal when starting the engine.
- do not warm up the engine when the vehicle is stationary.
- drive carefully and maintain a safe distance from the vehicle in front.
- avoid frequent, sudden acceleration and braking.
- change gear in good time and use each gear only up to  $\frac{2}{3}$  of its maximum engine speed.
- switch off the engine in stationary traffic.
- monitor the fuel consumption.

### Environmental issues and recommendations

When prompted by this Operator's Manual to dispose of materials, please try to regenerate and recycle these materials. Observe all relevant environmental guidelines and regulations when disposing of materials. This helps to protect the environment.

### Operating safety and vehicle registration

#### Important safety notes

#### WARNING

If you do not have the prescribed service/maintenance work or any required repairs carried out, this can result in malfunctions or system failures. There is a risk of an accident.

Always have the prescribed service/maintenance work as well as any required repairs carried out at a qualified specialist workshop.

Airbags and pyrotechnic Emergency Tensioning Devices contain perchlorate material, which may require special handling or environmental protection measures. National guidelines must be observed during disposal.

For California, you will find further information online at: <http://www.dtsc.ca.gov>

### Notes on driving

Damage to the vehicle may occur in the following cases:

- The vehicle becomes grounded, e.g. on a high curb or an unpaved road.
- You drive too fast over an obstacle, e.g. a curb, a speed bump or a pothole in the road.
- A heavy object strikes the underbody or chassis components.

In such situations, the body, frame, underbody, chassis parts, wheels or tires could be damaged without the damage being visible. Components damaged in this way can unexpectedly fail or, in the case of an accident, no longer withstand the strain they are designed for.

If the underbody paneling is damaged, flammable material, such as leaves, grass or twigs, could collect between the underbody and underbody paneling. If these materials come in contact with hot parts of the exhaust system for an extended period, they can catch fire.

#### WARNING

Flammable material such as leaves, grass or twigs may ignite if they come into contact with hot parts of the exhaust system. There is a risk of fire.

When driving on an unpaved road or off-road, check the vehicle underside regularly. In particular, remove trapped plant parts or other flammable material. Contact a qualified specialist workshop immediately if damage is detected.

Have the vehicle checked and repaired immediately at a qualified specialist workshop. If, on continuing your journey, you notice that driving safety is impaired, pull over and stop the vehicle immediately, paying attention to road and traffic conditions. In such cases, consult a qualified specialist workshop.

### Declarations of conformity

#### Vehicle components which receive and/or transmit radio waves

**USA:** "The wireless devices of this vehicle comply with Part 15 of the FCC Rules. Operation is subject to the following two conditions: 1) These devices may not cause harmful interference, and 2) These devices must accept any interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment".

**Canada:** "The wireless devices of this vehicle comply with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) These devices may not cause interference, and (2) These devices must accept any interference, including interference that may cause undesired operation of the device".

### Diagnostics connection

The diagnostics connection is used for connecting diagnostic equipment at a qualified specialist workshop.

#### WARNING

If you connect equipment to the vehicle's diagnostics connection, it can affect the operation of the vehicle systems. This may impair the vehicle's operating safety. There is a risk of an accident.

Only connect equipment to a diagnostics connection in the vehicle which is approved for your vehicle by Daimler Trucks North America (DTNA).

#### WARNING

Make sure that there is sufficient clearance around the pedals when floor mats are used, and that the floor mats are properly secured. The floor mats must be correctly secured at all times using the securing knob and retainers.

Before you drive off, check the floor mats and secure them if necessary. A floor mat which is not properly secured can slip and thereby interfere with the movement of the pedals.

Do not place floor mats on top of one another.

**!** Draining the battery through using devices on the diagnostics connection.

Using devices at the diagnostics connection places a load on the battery.

- Check the battery charge status.
- Charge the battery if the charge status is low.

### Modifying the engine output

**!** Increases in engine power can:

- change the emission values
- cause malfunctions
- cause consequential damage

The operating reliability of the engine is not guaranteed in all cases.

If you sell the vehicle, inform the buyer of any alterations to the vehicle's engine power output. If you do not inform the buyer, this may constitute a punishable offense under national legislation.

### Qualified specialist workshop

An authorized Freightliner Dealer is a qualified specialist workshop.

A qualified specialist workshop has the necessary specialist knowledge, tools and qualifications to carry out the work required on the vehicle correctly.

This is particularly applicable to work relevant to safety. Observe the notes in the Maintenance or Service Booklet.

You should always have the following work on your vehicle carried out at a qualified specialist workshop:

- safety-relevant work
- service and maintenance work
- repair work

- modifications as well as installations and conversions
- work on electronic components

Daimler Trucks North America (DTNA) recommends an authorized Freightliner dealer.

**!** Have the engine electronics and associated parts, such as control units, sensors, actuating components or electric cables serviced only at a qualified specialist workshop. Vehicle components may otherwise wear more quickly and the vehicle's operating permit may be invalidated.

### Problems with your vehicle

If you should experience a problem with your vehicle, particularly one that you believe may affect its safe operation, we urge you to contact an authorized Freightliner Dealer to have the problem diagnosed and rectified.

### Reporting malfunctions relevant to safety

USA only:

The following text is reproduced as required of all manufacturers under Title 49, Code of U.S. Federal Regulations, Part 575 pursuant to the National Traffic and Motor Vehicle Safety Act of 1966.

If you believe that your vehicle has a defect which could cause a crash or could cause injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying Daimler Trucks North America LLC.

If the NHTSA receives similar complaints, it may open an investigation, and if it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or Daimler Trucks North America LLC.

To contact NHTSA, you may call the Vehicle Safety Hotline toll-free at 1-888-327-4236 (TTY: 1-800-424-9153); go to **http://www.safercar.gov**; or write to: Administrator, NHTSA, 1200 New Jersey Avenue, SE, Washington, DC 20590.

You can find more information on vehicle safety under:

<http://www.safercar.gov>

Canada only:

Canadian customers who wish to report a safety-related defect to Transport Canada, Defect Investigations and Recalls, may telephone the toll-free hotline 1-800-333-0510, or contact Transport Canada by mail at: Transport Canada, ASFAD, Place de Ville Tower C, 330 Sparks Street, Ottawa, Ontario, Canada K1A 0N5.

For additional road safety information, please visit the Road Safety website at:

[www.tc.gc.ca/roadsafety](http://www.tc.gc.ca/roadsafety).

### Possible danger due to substances hazardous to health

In compliance with Proposition 65 (“Prop65”), the following detachable label has been added to each vehicle sold in California:



### Vehicle registration

Daimler Trucks North America (DTNA) may ask its authorized Freightliner dealers to carry out technical inspections on certain vehicles. This is always the case if it is possible to improve quality or safety levels. Daimler Trucks North America (DTNA) can only inform you about vehicle checks if Daimler Trucks North America (DTNA) has your registration data.

Your registration data are not available if:

- your vehicle was not purchased at an authorized Freightliner Dealer
- your vehicle has not yet been inspected at an authorized Freightliner Dealer

It is advisable to register your vehicle with an authorized Freightliner Dealer. Inform your authorized Freightliner Dealer as soon as pos-

sible about any change in address or vehicle ownership.

### Attachments, Body Builders and Truck Equipment Manufacturer (TEM) Conversions

Observe the information on genuine Mercedes-Benz and DTNA parts (▷ page 26).

You can obtain further information from any authorized Freightliner Dealer.

#### WARNING

The function of systems or components can be affected by conversions or modifications to the vehicle. They might not function properly anymore and/or jeopardize the operational safety of the vehicle. There is an increased risk of an accident and injury.

Conversions or modifications should always be carried out at qualified specialist workshop.

If you are planning on making changes to your vehicle, Daimler Trucks North America (DTNA) highly recommends that you contact an authorized Freightliner dealer, body builder or Truck Equipment Manufacturer (TEM). Here you will obtain all necessary information (there may be a charge).

Body manufacturers and dealers who make any modifications which may affect the final certification of the engine, vehicle or equipment assume the sole responsibility for the vehicle. This also includes labeling and documentation affected by their modifications.

It is their responsibility to certify that:

- the altered vehicle conforms to all applicable standards and regulations affected by the vehicle alteration
- the altered vehicle continues to comply with the motor vehicle safety standards and emissions regulations
- the changes or installation of accessories do not impair the safety of the vehicle

We are not responsible for any final certification or claims regarding product liability or warranty claims that arise as a result of such changes. This applies to:

- components, assemblies or systems which have been altered
- non-compliance with emissions laws and regulations or with vehicle safety standards arising as a result of the alterations
- all consequences resulting from the changed, less safe or even defective vehicle

We do not assume responsibility as the final stage manufacturer or the consequential product liability.

### Notes on the engine radiator

Even seemingly small changes to the vehicle, such as attaching a radiator trim for winter driving or as protection against insects, are not permitted. Do not cover the radiator. Do not use thermal mats, insect protection covers or anything similar.

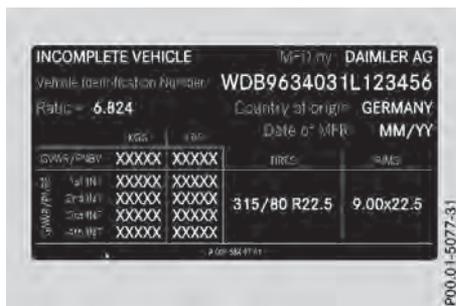
Doing so can cause the diagnostics system to display inaccurate values. Some of these values are legally required and must always be correct.

### Vehicle identification

#### Notes

Due to the multitude of requirements in the U.S. regulations authorizing the use of vehicles for road traffic (Federal Motor Vehicle Safety Standard, FMVSS), not all the plates and labels shown apply for your vehicle.

### Label for Federal Motor Vehicle Safety Standard (FMVSS)



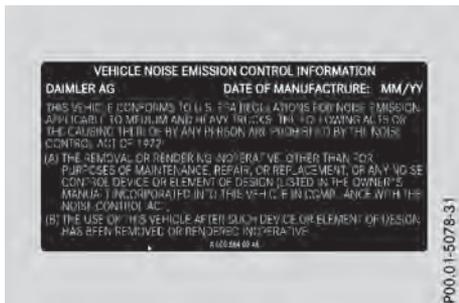
#### Example

Trucks purchased in the U.S.A., with or without fifth wheel coupling, are designated as certified by the FMVSS plate. The plate is on the B-pillar on the driver's side.

The data on tires and wheels serves as certification for suitable tire and wheel combinations which can be mounted depending on permitted axle load. Tires and wheels which are mounted on the vehicle at the time of manufacture may have a greater load capacity than that stated on the plate. Should the currently mounted tires and wheels have a lower load capacity than the value on the plate, then the mounted tires and wheels are applicable for the load limits of the individual axles.

Trucks which have been manufactured without bodies for goods transportation, and which are planned for use in the USA, are furnished with a plate which does not state all data in full. This plate is attached by the final-stage manufacturer and is enclosed with the still incomplete vehicle documents. It certifies that the vehicle complies with all directives in the FMVSS which applied at the time of manufacture.

## EPA Noise Emission Control Label



### Example

The label relating to noise emission control is on the B-pillar on the driver's side. The owner of the vehicle is responsible for maintaining the vehicle such that the directives of the United States Environmental Protection Agency (EPA) are adhered to.

Some uncompleted Freightliner brand vehicles may not be equipped with full provision for noise control. Vehicles of this type therefore have a label which is not completed with information about noise emission control. For such vehicles, the final-stage manufacturer must make sure that the vehicle is completed according to the EPA directives (CFR 40, section 205) and that it is furnished with a corresponding compliance declaration.

## Certified Clean Idle Label



### Example

The California Air Resources Board (CARB) requires that vehicles with diesel engines designed for heavy-duty operation be equipped with a non-programmable automatic shut-

off. This specification is valid for vehicles from construction year 2008.

The automatic shutoff switches off the engine after five minutes of running in idle and thereby reduces the emission of particulates and nitrogen oxides. Certified vehicles are furnished with a label located near the lower edge of the driver's door.

## Label for information about the control of vehicle emissions



### Example

Vehicles of construction year 2013 fulfill additional requirements which are specified in the nationally-applicable greenhouse gas and fuel efficiency regulations (GHG 14). Vehicles with construction year 2017 and later fulfill similar standards as those specified in the GHG 17 requirements. These vehicles are equipped with components which reduce greenhouse gas emissions and increase fuel efficiency. These components include, for example:

- Tires with low rolling resistance
- Aerodynamic elements, e.g. hood, extension of the sides of the cab, casing of the fuel tank
- Speed limiter
- Automatic shutoff for long idle times

The label for information about the control of vehicle emissions is on the driver's door. The owner of the vehicle is responsible for maintaining the vehicle such that the directives of the United States Environmental Protection

Agency (EPA) and National Highway Traffic Safety Administration (NHTSA) are adhered to.

## Genuine Mercedes-Benz/DTNA parts

### Environmental note

We supply reconditioned assemblies and parts which are of the same quality as new parts. The same New Vehicle Limited Warranty applies as for new parts.

If you use parts, tires or wheels which have not been approved by Mercedes-Benz/DTNA, the operating safety of the vehicle may be impaired. This could lead to malfunctions in safety-relevant systems, e.g. the brake system. Only use genuine Mercedes-Benz/DTNA parts or parts of a similar quality. Only use tires and wheels that have been specifically approved for your vehicle.

Mercedes-Benz/DTNA tests genuine parts, as well as conversion parts and accessories approved for your vehicle model for:

- Reliability
- Safety
- Suitability

Despite ongoing market research, Mercedes-Benz/DTNA is unable to assess other parts. We therefore accept no responsibility for the use of such parts in Freightliner vehicles, even if they have been independently or officially approved by a technical testing center.

In some countries, certain parts are only officially approved for installation or modification if they comply with legal requirements. All genuine Mercedes-Benz/DTNA parts satisfy these requirements. Make sure that the parts are suitable for your vehicle.

Always specify the vehicle identification number (VIN) and the engine number (> page 197) when ordering genuine Mercedes-Benz/DTNA parts.

## Data stored in the vehicle

### Electronic control units

Electronic control units are installed in your vehicle. Some of these are necessary for the safe operation of your vehicle, while some

assist you when driving (driver assistance systems). In addition, your vehicle provides comfort and entertainment functions, which are also made possible by electronic control units.

Electronic control units contain data memories which can temporarily or permanently store technical information about the vehicle's operating state, component loads, maintenance requirements and technical events or malfunctions.

In general, this information documents the state of a component part, a module, a system or the surroundings such as:

- operating statuses of system components (e.g. fluid levels, battery status, tire pressure)
- status messages concerning the vehicle and its individual components (e.g. number of wheel revolutions/speed, deceleration, lateral acceleration, display of the fastened seat belts)
- malfunctions or defects in important system components (e.g. lights, brakes)
- information on vehicle damage events
- system reactions in special driving situations (e.g. air bag deployment, intervention of stability control systems)
- ambient conditions (e.g. temperature, rain sensor)

In addition to providing the actual control unit function, this data assists the manufacturer in detecting and rectifying malfunctions and optimizing vehicle functions. The majority of this data is temporary and is only processed in the vehicle itself. Only a small portion of the data is stored in the event or fault memory.

When service work is done on your vehicle, the technical data from the vehicle can be read out by service network staff (e.g. workshops, manufacturer) or third parties (e.g. breakdown services). Services include repair services, maintenance processes, warranty events and quality assurance measures, for example. The read out is performed via the legally prescribed port for the diagnostics connection in the vehicle. The respective service network locations or third parties collect, process and use the data. They document technical statuses of the vehicle, assist in finding malfunctions and improving quality and are transmitted to the manufacturer, if necessary. Furthermore, the manufacturer is subject to product liability. For

this, the manufacturer requires technical data from vehicles.

Fault memories in the vehicle can be reset by a service outlet as part of repair or maintenance work.

They can enter data into the vehicle's comfort and infotainment functions themselves as part of the selected equipment.

These include:

- multimedia data such as music, films or photos for playback in an integrated multimedia system
- address book data for use in connection with an integrated hands-free system or an integrated navigation system
- entered navigation destinations
- data about the use of Internet services

This data can be saved locally in the vehicle or it is located on a device which you have connected to the vehicle (e.g. smartphone, USB flash drive or MP3 player). If this data is stored in the vehicle, you can delete it at any time.

This data can only be transmitted to third parties upon your request with particular regard to the scope of use of online services according to your selected settings.

You can store or change convenience settings/individualization in the vehicle at any time.

Depending on the equipment, this includes, for example:

- seat and steering wheel position settings
- suspension and climate control settings
- individualization such as interior lighting

If your vehicle is accordingly equipped, you can connect your smartphone or another mobile end device to the vehicle. You can control them via the control elements integrated in your vehicle. Images and audio from the smartphone can be output via the multimedia system. Certain information is simultaneously transferred to your smartphone.

Depending on the respective integration type, this includes, for example:

- general vehicle status
- position data

This enables the use of selected smartphone apps such as, e.g. navigation or music playback. There is no further interaction between the smartphone and the vehicle; in particular, vehicle data is not directly accessible. Which

type of further data processing occurs is determined by the provider of the specific app used. Which settings you can make, if any, depends on the specific app and the operating system of your smartphone.

## Online services

### Wireless network connection

If your vehicle has a wireless network connection, it enables data to be exchanged between your vehicle and additional systems. The wireless network connection is enabled via the vehicle's transmitter and receiver device or via connected mobile end devices (e.g. smartphones). Online functions can be used via the wireless network connection. This includes online services and applications/apps provided by the manufacturer or other providers.

### Manufacturer's services

Regarding online services of the manufacturer, the individual functions are described by the manufacturer in a suitable place (e.g. Operator's Manual, website of the manufacturer) along with the relevant data protection information. Personal data may be used for the provision of online services. Data is exchanged via a secure connection, e.g. the manufacturer's designated IT systems. Personal data is collected, processed and used via the provision of services exclusively on the basis of legal permissions or with prior consent.

The services and functions (sometimes subject to a fee) can usually be activated or deactivated. In some cases, this also applies to the entire vehicle's data connection. This excludes, in particular, legally prescribed functions and services, such as "E-Call" the traffic emergency call system.

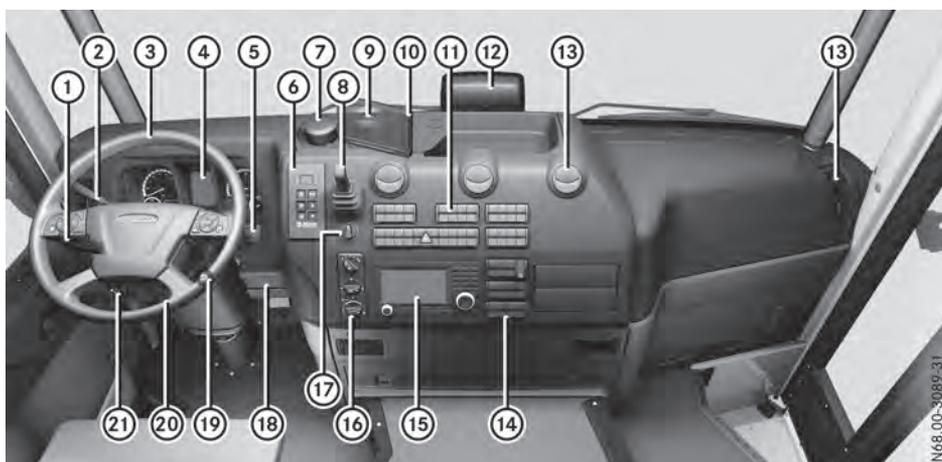
### Third party services

If it is possible to use online services from other providers, these services are subject to the data protection and terms of use of the responsible provider. The manufacturer has no influence on the content exchanged.

Please inquire, therefore, about the type, scope and purpose of the collection and use of personal data as part of third party services from their respective provider.

## Cockpit

## Overview



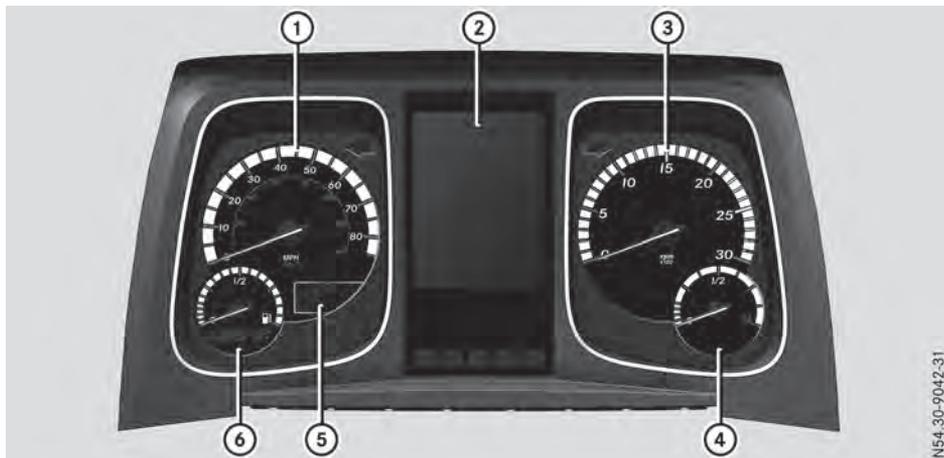
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	Function	Page
①	Combination switch	33
②	Blind Spot Assist control lever	135
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④	Instrument cluster	30
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⑪	Switch units	31

	Function	Page
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⑯	Climate control panel	59
⑰	Auxiliary air conditioning system control knob	62
⑱	Auxiliary heating	63
⑲	Ignition lock	103
⑳	Adjusts the multifunction steering wheel	47
㉑	Light switch	49

## Instrument cluster

## Displays

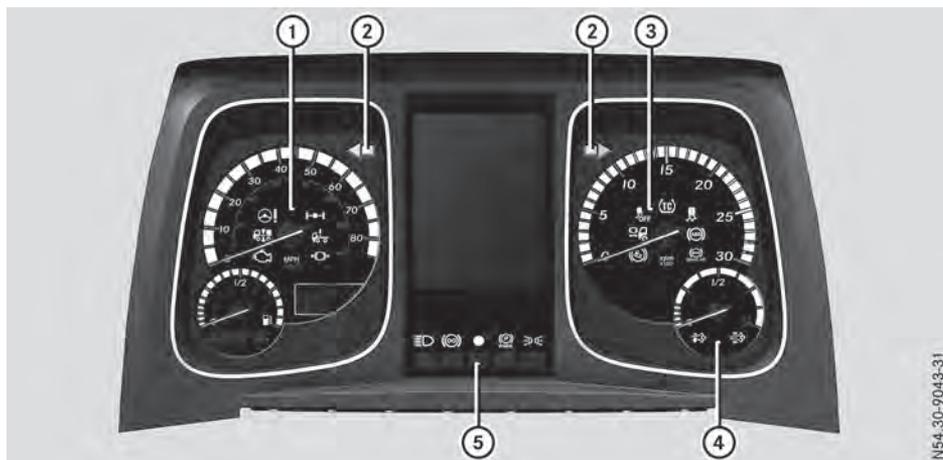


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	Function	Page
①	Speedometer	
②	On-board computer	72
③	Rev counter	68
④	DEF level	69

	Function	Page
⑤	Clock and outside temperature display	69
⑥	Fuel level	69

## Indicator lamps



N54-30-9043-31

Indicator lamps (example: instrument cluster with large screen)

	Function	Page		Function	Page
①	<b>Warning and indicator lamps in the speedometer</b>			Brake malfunction	105
	Engine diagnostics	70		Active Brake Assist	128
	Cab tilt lock	172		Hill holder	112
	Level control outside driving level	140	④	<b>Warning and indicator lamps in the DEF display</b>	
	Instruction to brake at high engine speeds	68		Diesel particle filter, automatic regeneration	148
	Differential lock	118		Diesel particle filter malfunction	147
②	Turn signals	50	⑤	<b>Warning and indicator lamps below the on-board computer</b>	
③	<b>Warning and indicator lamps in the rev counter</b>			High-beam headlamps	50
	Stability Control Assist deactivated	117		Continuous brake	113
	Stability Control Assist	117		Parking brake	110
	ASR (acceleration skid control system)	116		Parking lamps	49
	ABS (Anti-lock Braking System)	110			

**i** An overview of the warning and indicator lamps in the status area of the on-board computer can be found under "On-board computer and displays" (▷ page 100).

## Switch units



	Function	Page
①	Switch units	
	Hill holder	112
	Frequent-stop brake	111
	Level control: driving level	142
	Level control: raised driving level	142
	Level control: STOP	141
	Diesel particle filter: starts regeneration	149
	Diesel particle filter: blocks regeneration	148
	Hazard warning lamps	
	Override/Engine Shutdown	
	Stability Control Assist	117
	Constant engine speed	155
	Opens/closes the folding door	41
	Activates/deactivates the external folding door button	41
	Air-conditioning system	59
	Active Brake Assist	128
	Lane Keeping Assist	134
	Rear axle cross-axle lock	118
	Transfer case interaxle differential lock	118
	Rear axle cross-axle lock	118

	Function	Page
	Lamp check	102
	Opens/closes co-driver's side window	43
②	Switch units	
	Rotating beacon	51
	Working-area lamp (switches off automatically after pulling away)	
	Air horn/horn	55
	Battery isolator switch	54
	12 V voltage transformer	55
	Driver's reading lamp	50
	Interior lamps	50
	Automatic control of the interior lighting	50
	Co-driver's reading lamp	50
	Nightlight (green)	50
	Chassis-lowering feature on the front axle	143
③	Switch unit on the driver's door	
	Adjusts the exterior mirrors	48
	Switches on the mirror heating	48
	Switches off the mirror heating	48
	Closes the driver's side window	43
	Opens the driver's side window	43
	Opens roller sunblind	44
	Closes roller sunblind	44

Multifunction steering wheel



Left button group on the multifunction steering wheel

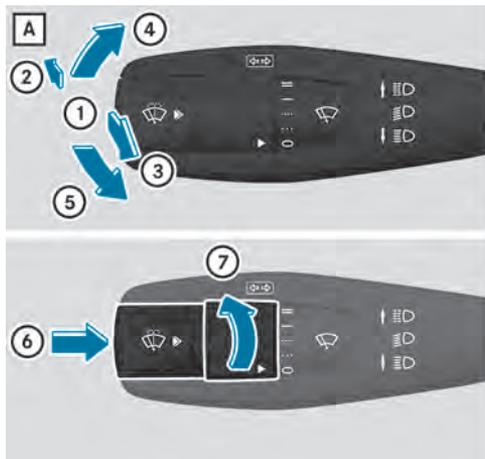
	Function	Page
	<b>Operating the on-board computer:</b>	72
	Selects the next main menu/next entry in the input window; increases or resets value	
	Selects the previous main menu/previous entry in the input window or decreases value	
	Next menu window/next menu bar down in the input window	
	Previous menu window/next menu bar up in the input window	
	Opens and closes input window/acknowledges event window	
	Stores/displays favorite menu window	
	Increases/— decreases the volume: Audio Telephone	77



Right-hand button group on the multifunction steering wheel

	Function	Page
	<b>Operating the driving systems:</b>	
	Selects cruise control	123
	Selects the distance control assistant	126
	Activates and adjusts current speed/limit speed; increases the speed/limit speed	
	Activates and calls up stored speed/limit speed; reduces set speed/limit speed	
	Selects the speed limiter	121
	Deactivates speed limiter/cruise control/distance control assistant	
	Driving systems menu window	
	Sets the speed tolerance (cruise control/distance control assistant)	123
	Sets the specified distance (distance control assist)	126
	<b>Operating the telephone:</b>	
	Makes or accepts a call/displays <b>Telephone</b> menu window	
	Ends or rejects a call/activates the voice control system	

Combination switch and multifunction lever



N54.25-4719-31

	Function	Page
<b>A</b>	<b>Combination switch</b>	
①	High-beam headlamps off (when low-beam headlamps are switched on)	50
②	High-beam headlamps on (when low-beam headlamps are switched on)	50
③	Headlamp flasher	50
④	Turn signal, right	50

	Function	Page
⑤	Turn signal, left	50
⑥	Wipes with washer fluid/ single wipe	53
⑦	Windshield wipers	53
<b>B</b>	<b>Multifunction lever</b>	
⑧	Continuous brake	113

## Useful information

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific deviations are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops: (> page 22).

## Occupant safety

### Introduction to the restraint system

The restraint system can reduce the risk of vehicle occupants coming into contact with parts of the vehicle's interior in the event of an accident.

The various components of the restraint system work complementary to one another. They can only perform their intended protective function if all vehicle occupants:

- have correctly fastened their seat belt (> page 36)
- have correctly adjusted their seat (> page 45)

As the driver, you must also ensure that the steering wheel is correctly adjusted. Observe the information relating to the correct driver's seat position (> page 45).

See "Children in the vehicle" for information on infants and children traveling with you in the vehicle restraint systems for infants and children (> page 37).

### Important safety notes

#### WARNING

Modifications to the restraint system may cause it to no longer work as intended. The restraint system may then not perform its intended protective function and may fail in an accident or trigger unexpectedly, for example. This poses an increased risk of injury or even fatal injury.

Never modify parts of the restraint system.  
Never tamper with the wiring, the electronic components or their software.

If it is necessary to modify components of the restraint system for a person with physical disabilities, contact an authorized Freightliner service center for details. USA only: contact our Customer Assistance Center for details.

## Seat belts

### Introduction

A correctly fastened seat belt is the most effective means of limiting the movement of a vehicle occupant during a collision. This reduces the risk of vehicle occupants coming into contact with parts of the vehicle interior or being ejected from it.

If the seat belt is pulled quickly or suddenly from the belt outlet, the inertia reel locks. The belt strap cannot be pulled out further.

### Important safety notes

The use of seat belts and child restraint systems is required by law in:

- all 50 states
- the US territories
- the District of Columbia
- all Canadian provinces

Even where this is not required by law, all vehicle occupants should correctly fasten their seat belts before starting the journey.

The seat belts fulfill the requirements set out in the Federal Motor Vehicle Safety Standard 209.

#### WARNING

If the seat belt is not worn correctly, it cannot perform its intended protective function. An incorrectly fastened seat belt can also cause injuries, for example, in the event of an accident or when braking or changing direction abruptly. This poses an increased risk of injury or even fatal injury.

Always ensure that all vehicle occupants have their seat belts fastened correctly and are sitting properly.

The various components of the restraint system work complementary to one another. They can only perform their intended protective function if all vehicle occupants:

- have correctly fastened their seat belt (▷ page 36)
- have correctly adjusted their seat (▷ page 45)

### WARNING

The seat belt does not offer the intended level of protection if you have not moved the backrest to an almost vertical position.

When braking or in the event of an accident, you could slide underneath the seat belt and sustain abdomen or neck injuries, for example. This poses an increased risk of injury or even fatal injury.

Adjust the seat properly before beginning your journey. Always ensure that the backrest is in an almost vertical position and that the shoulder section of your seat belt is routed across the center of your shoulder.

### WARNING

Persons less than 5 ft (1.50 m) tall cannot wear the seat belt correctly without an additional and suitable restraint system. If the seat belt is not worn correctly, it cannot perform its intended protective function. An incorrectly fastened seat belt can also cause injuries, for example, in the event of an accident or when braking or changing direction abruptly. This poses an increased risk of injury or even fatal injury.

For this reason, always secure persons under 5 ft (1.50 m) tall in suitable additional restraint systems.

If a child younger than twelve years old and under 5 ft (1.50 m) in height is traveling in the vehicle:

- always secure the child in a child restraint system suitable for this vehicle. The child restraint system must be appropriate to the age, weight and size of the child.
- ensure that you observe the instructions and safety notes in the "Children in the vehicle" section (▷ page 37) in addition to the

child restraint system operating instructions and manufacturer's instructions

### WARNING

Seat belts can offer no protection in the following situations:

- The seat belt is damaged, modified, extremely dirty, bleach or dyed
- The seat belt buckle is damaged or extremely dirty
- Modifications have been made to the seat belt anchorage or seat belt retractor

Seat belts may be damaged in an accident, although the damage may not be visible, e.g. due to splinters of glass. Modified or damaged seat belts may tear or fail, e.g. in an accident. This poses an increased risk of injury or even fatal injury.

Never modify the seat belts, belt anchorages or inertia reels. Make sure that the seat belts are undamaged, not worn out and clean. Following an accident, have the seat belts checked immediately at a qualified specialist workshop.

The service life of seat belts can be significantly shorter than the service life of the vehicle. Make sure that the seat belts always function correctly. If required, have the seat belts checked and/or replaced as soon as possible at a qualified specialist workshop.

Only use seat belts that have been specifically approved for the respective vehicle by the sales organization named on the inside front cover.

## Checking seat belts

Observe the safety notes on the seat belt (▷ page 34).

Always check all visible seat belt components for wear or damage as well as correct function:

- Check the seat belt strap for damage, e.g. fraying or cuts, for soiling and dust or for severe fading as a result of direct sunlight. Check in particular in the area of the seat

belt tongue and in the area of the seat belt outlet.

- Check the function of the seat belt buckle, seat belt retractor and the seat belt height adjustment.

Clean the seat belts as recommended (▷ page 156).

Worn or damaged seat belts can no longer fulfill their protective function and must be replaced. Always have work on the seat belts carried out at a qualified specialist workshop.

### Correct seat belt use

Observe the safety notes on the seat belt (▷ page 34).

In order for the correctly worn seat belt to provide the intended level of protection, each vehicle occupant must observe the following information. Also make sure that all vehicle occupants have their seat belt correctly fastened during the journey.

When fastening the seat belt, always make sure that:

- the seat belt tongue is only inserted into the correct belt buckle for the corresponding seat
- the seat belt fits closely across your body  
Avoid wearing bulky clothing, e.g. a winter coat.
- the seat belt is not twisted  
Only then can the forces produced during an accident be distributed across the surface of the seat belt.
- the shoulder section of the belt is routed across the center of your shoulder  
The shoulder section of the seat belt should not touch your neck nor be routed under your arm or behind your back. If possible, adjust the seat belt to the appropriate height.
- the lap belt is fastened closely and routed as low as possible across your lap, i.e. across your hips

The lap belt must always be routed across the hip joints and never across your stomach or abdomen. This is of particular importance for pregnant women. If necessary, push the lap belt downwards into your pelvic area and pull it tight using the shoulder section of the belt.

- the seat belt is not routed across sharp-edged, pointed or breakable objects  
Should you have such objects on or in your clothing, e.g. pens, keys or spectacles, stow these in a suitable place.

- only one person uses each seat belt at any one time

Infants and children must never travel sitting on the lap of another vehicle occupant. In the event of an accident, they could be crushed between the vehicle occupant and the seat belt.

- objects are never secured with a seat belt if the seat belt is also being used by a vehicle occupant

Also make sure that there are never any objects between a person and the seat, e.g. cushions.

Seat belts are solely intended to secure and restrain vehicle occupants. When securing objects, luggage or loads, always observe the instructions and safety notes on "Stowage spaces and compartments" (▷ page 55).

### Fastening the seat belt

Observe the safety notes on seat belts (▷ page 34) and the notes on the correct use of the seat belt (▷ page 36).



Basic diagram

- ▶ Adjust the seat (▷ page 45).  
The seat backrest must be in an almost vertical position.
- ▶ Pull the seat belt smoothly from belt outlet ③ and engage seat belt tongue ② in seat belt buckle ①.  
The shoulder section of the belt must always be routed across the center of the shoulder.
- ▶ If necessary, pull upwards on the seat belt in front of your chest so that the belt sits tightly across your body.

### Releasing the seat belt

- ! Make sure that the seat belt is fully rolled up. Otherwise, the seat belt or belt tongue will be trapped in the door or in the seat mechanism. This could damage the door, the door trim panel and the seat belt. Damaged seat belts can no longer fulfill their protective function and must be replaced. Visit a qualified specialist workshop.
- ▶ Press the release button in the belt buckle, hold the belt tongue firmly and guide the belt back.

## Children in the vehicle

### Important safety notes

If a child younger than twelve years old and under 5 ft (1.50 m) in height is traveling in the vehicle:

- always secure the child in a child restraint system suitable for this vehicle. The child restraint system must be appropriate to the age, weight and size of the child.
- always observe the instructions and safety notes in this section in addition to the child restraint system manufacturer's instructions.

### WARNING

If children are left unsupervised in the vehicle, they could, in particular:

- Open doors, thereby endangering other persons or road users
- Get out and be struck by oncoming traffic
- Operate vehicle equipment and become trapped, for example

In addition, children could set the vehicle in motion, for example, if they:

- Release the parking brake.
- Change the transmission position
- Start the vehicle

There is a risk of accident and injury.

Never leave children unsupervised in the vehicle.

When leaving the vehicle, always take the SmartKey with you and lock the vehicle.

Keep the SmartKey out of the reach of children.

### WARNING

If persons, particularly children are subjected to prolonged exposure to extreme heat or cold, there is a risk of injury, possibly even fatal. Never leave children unattended in the vehicle.

### WARNING

If the child restraint system is subjected to direct sunlight, parts may get very hot. Children may burn themselves on these parts, particularly on the metal parts of the child restraint system. There is a risk of injury.

If you leave the vehicle, taking the child with you, always ensure that the child restraint system is not exposed to direct sunlight.

Protect it with a blanket, for example. If the child restraint system has been exposed to direct sunlight, let it cool down before securing the child in it. Never leave children unattended in the vehicle.

Make sure that all vehicle occupants have fastened their seat belts properly and are seated

correctly. This is particularly important for children.

Observe the safety notes on seat belts (> page 34) and the notes on the correct use of the seat belt (> page 36).

A booster seat may be necessary to achieve proper seat belt positioning for children over 40 lbs (18 kg) until they reach a height where a three-point seat belt fits properly without a booster seat.

### Child restraint system

The use of seat belts and child restraint systems is required by law in:

- all 50 states
- the US territories
- the District of Columbia
- all Canadian provinces

#### WARNING

If the child restraint system is installed incorrectly on a suitable seat, it cannot protect as intended. The child cannot then be restrained in the event of an accident, heavy braking or sudden changes of direction.

There is an increased risk of injury, possibly even fatal.

Make sure that you observe the child restraint system manufacturer's installation instructions and the notes on use. Please ensure, that the base of the child restraint system is always resting completely on the seat cushion. Never place objects, e.g. cushions, under or behind the child restraint system. Only use child restraint systems with the original cover designed for them. Only replace damaged covers with genuine covers.

#### WARNING

If the child restraint system is installed incorrectly or is not secured, it can come loose in the event of an accident, heavy braking or a sudden change in direction. The child restraint system could be thrown about, striking vehicle occupants. There is

an increased risk of injury, possibly even fatal.

Always install child restraint systems properly, even if they are not being used. Make sure that you observe the child restraint system manufacturer's installation instructions.

You will find further information on securely stowing objects, luggage and loads under "Stowage spaces and compartments" (> page 55).

#### WARNING

Child restraint systems or their securing systems which have been damaged or subjected to a load in an accident can no longer protect as intended. The child cannot then be restrained in the event of an accident, heavy braking or sudden changes of direction. There is an increased risk of injury, possibly even fatal.

Replace child restraint systems which have been damaged or subjected to a load in an accident as soon as possible. Have the securing systems on the child restraint system checked at a qualified specialist workshop, before you install a child restraint system again.

All child restraint systems must meet the following standards:

- U.S. Federal Motor Vehicle Safety Standards 213 and 225
- Canadian Motor Vehicle Safety Standards 213 and 210.2

Observe the warning labels on the child restraint system.

If a child is traveling in the vehicle, always observe the safety notes on "Children in the vehicle" (> page 37).

The seat belt is the securing system for child restraint systems.

If you secure a child in a forward-facing child restraint system on the front-passenger seat, always move the front-passenger seat as far back as possible. The base of the child restraint system must rest completely on the front-passenger seat cushion. The backrest of a forward-facing child restraint system must sit as flat as possible against the seat backrest

of the front-passenger seat. When doing so, always ensure that the shoulder belt strap is correctly routed from the belt outlet to the shoulder belt sash guide on the child restraint system. The shoulder belt strap must be routed forwards and downwards from the belt outlet. If necessary, adjust the belt outlet accordingly. Always comply with the child restraint system manufacturer's installation instructions.

## Pets in the vehicle

### **WARNING**

If you leave animals unsupervised or unsecured in the vehicle, they may press buttons or switches, for instance.

In this way, animals may:

- activate vehicle equipment and become trapped, for example
- switch systems on or off and thereby endanger other road users

Furthermore, unsecured animals may be flung around inside the vehicle in the event of an accident or abrupt steering or braking maneuver, and thereby injure vehicle occupants. There is a risk of accident and injury. Never leave animals unattended in the vehicle.

Always secure animals properly when driving, for instance with a suitable pet carrier.

## Useful information

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific deviations are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops: (> page 22).

## Locking system

### Key

#### WARNING

If you attach heavy or large objects to the SmartKey, the SmartKey could be unintentionally turned in the ignition lock. This could cause the engine to be switched off. There is a risk of an accident.

Do not attach any heavy or large objects to the SmartKey. Remove any bulky key rings before inserting the SmartKey into the ignition lock.

Your vehicle is equipped with a special key system. The engine can only be started using keys that are coded for the vehicle.

**i** If a vehicle key is lost, obtaining a replacement is a time-consuming process. This can only be done through a Freightliner Service Center.

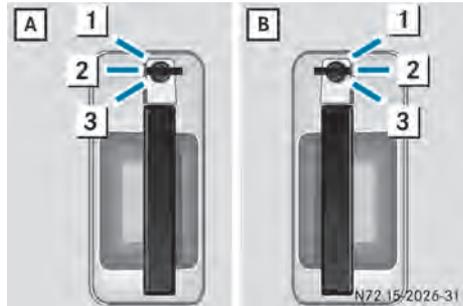
Daimler Trucks North America therefore recommends that you always keep an easily accessible spare key with you for emergencies.

## Unlocking/locking the vehicle

### Important safety notes

**!** Only open the doors when road and traffic conditions permit. Make sure that there is sufficient clearance when opening the doors. Otherwise, you could damage your vehicle or other vehicles.

## External door lock



- ▶ Insert the key into the lock of left-hand hinged door **A** or right-hand hinged door **B** in position **2**.
- ▶ **To unlock:** turn the key to position **1**. The corresponding door is unlocked.
- ▶ **To lock:** turn the key to position **3**.
- ▶ **To open:** remove the key from position **2**.
- ▶ Pull the door handle.

## Internal door lock

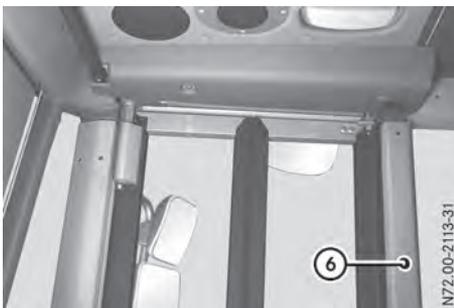
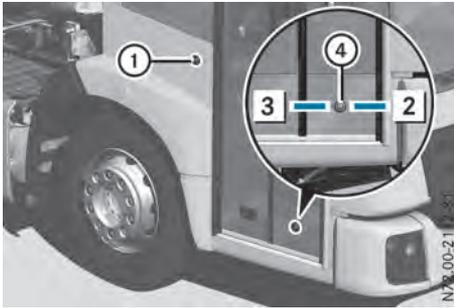


Door handle (example: left-hand door)

- ▶ Close the door.
- ▶ **To lock:** push release lever **1**.
- ▶ **To unlock and open:** pull release lever **1**.

## Folding door

### Overview



- ▶ **To unlock:** insert the key into lock cylinder ④ and turn it to position ②.
- ▶ **To lock:** insert the key into lock cylinder ④ and turn it to position ③.

**Activating/deactivating the external button**

It is possible to activate/deactivate external button ①. If you deactivate external button ①, the folding door cannot be opened from the outside.

- ▶ Press the lower section of button ⑤. When the indicator lamp in button ⑤ lights up, the external button is deactivated.

**Unlocking/locking cab doors**

- ▶ **To unlock/lock:** press the lower section of button ⑤. When the indicator lamp in button ⑤ lights up, the cab doors are locked.

**Opening/closing the folding door**

- ▶ Vehicles with lock cylinders: unlock the door using the door lock.
- ▶ Turn the key to the radio position in the ignition lock.
- ▶ Press the upper section of button ⑤.
- or
- ▶ Press internal button ⑥.
- or
- ▶ Press external button ①. The folding door opens or closes.

You are only able to open or close the folding door at speeds below 2 mph (3 km/h).

If you pull away with the folding door open, it will automatically close once a speed of 2 mph (3 km/h) is reached.

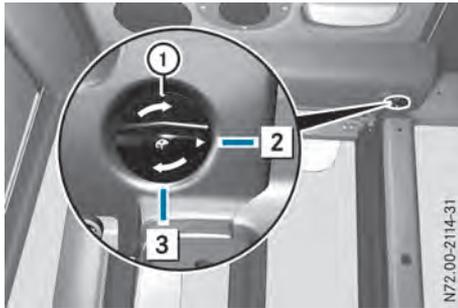
If the obstacle detection detects an obstacle while the folding door is being closed, the folding door opens again automatically.

- ① External button, opens/closes folding door
- ② Lock cylinder position, unlocked
- ③ Lock cylinder position, locked
- ④ Lock cylinder
- ⑤ Button for opening/closing folding door and activating/deactivating external button  
Vehicles with hinged co-driver's door: locks cab doors
- ⑥ Internal button, opens/closes folding door

**Unlocking/locking**

On vehicles with lock cylinders ④ it is possible to unlock and lock the folding door from the outside.

### Opening the folding door in an emergency



- ▶ **To open:** turn control knob ① to emergency position ③.
- ▶ Open the folding door manually.
- ▶ **To close:** turn control knob ① to driving position ②.  
The folding door closes  $\frac{2}{3}$  and is not locked.
- ▶ Close the folding door (▷ page 41).

### Doors

#### WARNING

If children are left unsupervised in the vehicle, they could:

- open the doors, thus endangering other people or road users.
- get out and disrupt traffic.
- operate the vehicle's equipment.

Additionally, children could set the vehicle in motion if, for example, they:

- release the parking brake.
- shifting the automatic transmission out of park position **P**
- Start the engine.

There is a risk of an accident and injury.

When leaving the vehicle, always take the SmartKey with you and lock the vehicle. Never leave children or animals unattended in the vehicle. Always keep the SmartKey out of reach of children.

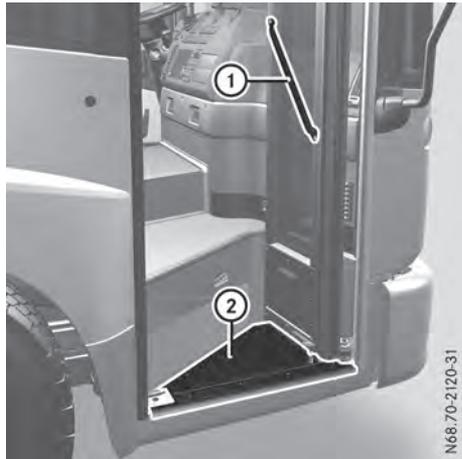
Ensure that you observe the safety notes in the "Children in the vehicle" section (▷ page 37).

Safe entry and exit from the vehicle can only be guaranteed if you use the grab handles and steps. Only these are designed to withstand the necessary weight. Do not jump down from the cab.

Keep steps, door sills, grab handles and footwear free from dirt, such as:

- mud
- clay
- snow
- ice

This increases the safety of your footing.



Example: getting into and out of the vehicle

- ▶ Use the EASY-ENTRY/EXIT system of the suspension seat (▷ page 46).
- ▶ Use grab handles ① and steps ② when getting in and out of the vehicle.

## Side windows

### Important safety notes

#### WARNING

When a side window is opened, body parts may be drawn in or become trapped between the side window and the window frame. There is a risk of injury.

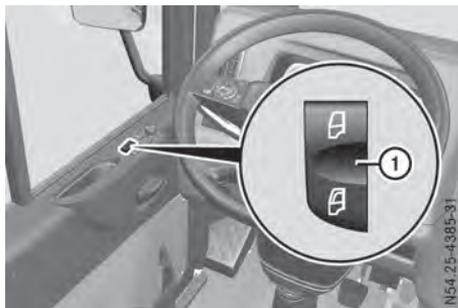
Ensure that nobody is touching the side window when opening it. If somebody becomes trapped, release the button immediately or press the upper section of the button to close the side window again.

#### WARNING

While closing the side windows, body parts in the closing area could become trapped. There is a risk of injury.

When closing make sure that no parts of the body are in the closing area. If somebody becomes trapped, release the switch or press the switch to open the side window again.

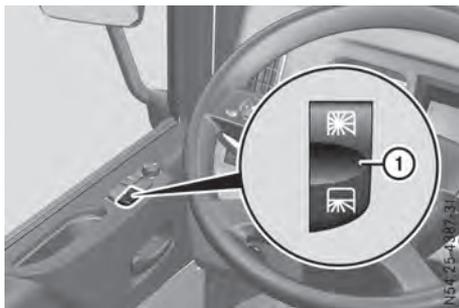
### Opening/closing the side windows



- ① Button for side window of driver's door
- ② Button for side window of front-passenger door

- ▶ Turn the key to the radio position in the ignition lock.
- ▶ **To open:** press the lower section of button ① or ② until the corresponding side window has reached the desired position.
- ▶ **To close:** press the upper section of button ① or ② until the corresponding side window has reached the desired position.

## Roller sunblind



- ▶ Turn the key to the drive position in the ignition lock.
- ▶ **To extend:** press the lower section of button ① until the roller sunblind has reached the desired position.
- ▶ **To retract:** press the upper section of button ① repeatedly until the roller sunblind has reached the desired position.

or

- ▶ Press the upper section of button ① until automatic operation begins. The roller blind retracts fully.
- ▶ **To interrupt automatic operation:** briefly press the upper or lower section of button ①.

## Useful information

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific deviations are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops: (> page 22).

## Seats

### Important safety notes

#### WARNING

You could lose control of your vehicle if you do the following while driving:

- adjust the driver's seat, steering wheel or mirrors
- fasten the seat belt

There is a risk of an accident.

Adjust the driver's seat, steering wheel or mirrors and fasten your seat belt before starting the engine.

#### WARNING

When you adjust a seat, you or other vehicle occupants could become trapped, e.g. on the seat guide rail. There is a risk of injury.

When adjusting a seat, make sure that no one has any body parts in the sweep of the seat.

#### WARNING

The seat belt does not offer the intended level of protection if you have not moved the backrest to an almost vertical position.

When braking or in the event of an accident, you could slide underneath the seat belt and sustain abdomen or neck injuries, for example. This poses an increased risk of injury or even fatal injury.

Adjust the seat properly before beginning your journey. Always ensure that the backrest is in an almost vertical position and that the shoulder section of your seat belt is routed across the center of your shoulder.

#### WARNING

If the driver's seat is not engaged, it could move unexpectedly while the vehicle is in motion. This could cause you to lose control of the vehicle. There is a risk of an accident.

Always make sure that the driver's seat is engaged before starting the vehicle.

#### WARNING

If there is not enough clearance, the suspension seat could trap body parts between the steering wheel and the suspension seat. There is a risk of injury.

Ensure that there is enough clearance for the movements of the suspension seat. Before getting out, lower the suspension seat completely.

#### WARNING

If you push the suspension seat bellows inwards, your hand could become trapped. There is a risk of injury.

Do not push the bellows inwards.

 To prevent damage to the seats and the seat heating, observe the following notes:

- Do not pour any fluid on the seats. If fluid is poured on the seats, dry it as quickly as possible.
- If the seat covers are damp or wet, do not switch on the seat heating. Also, do not use the seat heating to dry the seats.
- Clean the seat covers as recommended; see the "Cleaning and care" section.
- Do not transport any heavy loads on the seats. Do not place any pointed objects on the seat cushions, such as e.g. knives, nails or tools. As far as possible, only use the seats for people.
- When operating the seat heating, do not cover the seats with insulating materials,

e.g. blankets, coats, bags, protective covers, child seats or booster seats.

- ❗ Make sure that loose objects in the cab cannot block the seats. The seats could otherwise be damaged.

Your seat must be adjusted in such a way that you can fasten your seat belt correctly.

Observe the following points:

- set the seat backrest to a position as near to vertical as possible and sit as upright as possible. Never drive with the seat backrest reclined too far back.
- your arms should be slightly bent when you are holding the steering wheel.
- avoid seat positions which do not allow the seat belt to be routed correctly. The shoulder section of the belt must be routed across the center of your shoulder and must be pulled tight against your upper body. The lap belt must always be routed across your lap as low down as possible, i.e. across your hips.
- maintain a distance to the pedals that allows you to depress them fully.

The seats in your vehicle vary depending on the equipment installed, which can include the following:

- standard suspension seat
- co-driver's seat

Ensure that you also observe the safety notes in the "Children in the vehicle" section (▷ page 37).

Always use the EASY-ENTRY/EXIT feature when getting out of the vehicle.

To operate a suspension seat, a reservoir pressure of at least 700 KPa (7 bar) (100 psi) is required in your vehicle's compressed-air system.

A seat with an integrated seat belt is a safety-relevant component and restraint system.

Ensure that you read the safety guidelines in the "Occupant safety" section (▷ page 34).

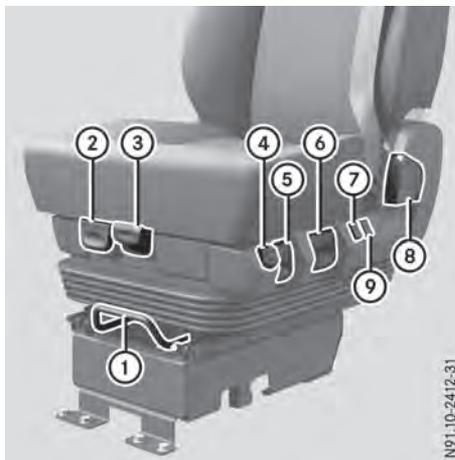
Information on seat cleaning can be found in the "Cleaning and care" section (▷ page 156).

Always have work on the seats performed at a qualified specialist workshop.

## Operating the seats

### Standard suspension seat

- ❗ When adjusting the seat fore-and-aft setting, make sure that the head section of the lower berth is fully lowered. Otherwise, the head section can hit the seat and damage both components.



Example: suspension seat settings

Before adjusting the seat, read the important safety notes about the seats. Depending on the seat design, some adjustment options may not be available.

- ▶ **To adjust the backrest:** relieve the backrest of any weight.
- ▶ Pull lever ⑧ up and hold it.
- ▶ Apply force to/relieve load on the seat backrest in order to move it into the desired position.
- ▶ Release lever ⑧.
- ▶ **To set the seat fore-and-aft adjustment:** pull lever ① upwards and hold it.
- ▶ Push the seat forwards or backwards in order to move it into the desired position.
- ▶ Release lever ①.
- ▶ Slide the seat forwards/backwards until it engages audibly.
- ▶ **To adjust the seat cushion length:** pull lever ③ upwards and hold it.
- ▶ Push the seat cushion forwards or backwards in order to move it into the desired position.

- ▶ Release lever ③.
- ▶ **To adjust the seat cushion angle:** pull lever ② upwards and hold it.
- ▶ Apply force to/relieve load on the seat cushion or backrest in order to move it into the desired position.
- ▶ Release lever ②.
- ▶ **To adjust the seat height:** pull lever ⑥ up or push it down one level.  
The seat is raised or lowered by one level.
- ▶ **To adjust the damper:** set the damper using lever ⑤.
- ▶ **To use the EASY-ENTRY/EXIT feature:** press lever ④ downwards.  
The seat is lowered completely.
- ▶ Pull lever ④ upwards.  
The seat returns to the previously set height.
- ▶ **i** You can adjust the backrest contour (lumbar support) to support your spine.
- ▶ **To adjust the backrest contour:** press the upper or lower section of switch ⑨.  
The lower seat backrest contour is increased or decreased.
- ▶ Press the upper or lower section of switch ⑦.  
The upper seat backrest contour is increased or decreased.

### Static co-driver's seat



Example: static seat

The static seat cannot be adjusted.

### Adjusting the multifunction steering wheel

#### **⚠ WARNING**

You could lose control of your vehicle if you do the following while driving:

- adjust the driver's seat, steering wheel or mirrors
- fasten the seat belt

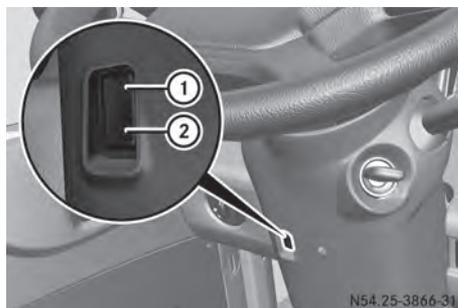
There is a risk of an accident.

Adjust the driver's seat, steering wheel or mirrors and fasten your seat belt before starting the engine.

#### **⚠ WARNING**

If the steering wheel is unlocked while the vehicle is in motion, it could change position unexpectedly. This could cause you to lose control of the vehicle. There is a risk of an accident.

Before starting off, make sure the steering wheel is locked. Never unlock the steering wheel while the vehicle is in motion.



If sufficient supply pressure is available, you can adjust the steering wheel.

- ▶ Stop the vehicle.
- ▶ Apply the parking brake.
- ▶ **To adjust:** press lower section ② of the button.  
The steering column is unlocked.
- ▶ Adjust the multifunction steering wheel height and angle.
- ▶ Press upper section ① of the button.  
The steering column is locked.

- i** The steering wheel locks automatically approximately 10 seconds after it is unlocked.

## Adjusting the exterior mirrors

### Important safety notes

#### **⚠ WARNING**

You could lose control of your vehicle if you do the following while driving:

- adjust the driver's seat, steering wheel or mirrors
- fasten the seat belt

There is a risk of an accident.

Adjust the driver's seat, steering wheel or mirrors and fasten your seat belt before starting the engine.

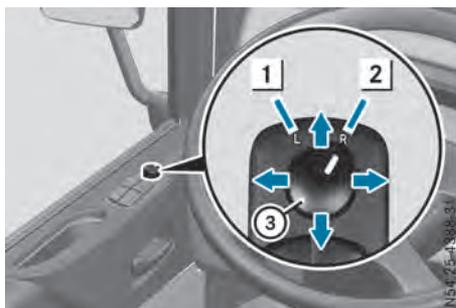
#### **⚠ WARNING**

The exterior mirrors reduce the size of the image. Visible objects are actually closer than they appear. This means that you could misjudge the distance from road users traveling behind, e.g. when changing lane. There is a risk of an accident.

For this reason, always make sure of the actual distance from the road users traveling behind by glancing over your shoulder.

An incorrectly adjusted exterior mirror may impair visibility. For this reason, always check the position of the exterior mirrors on the vehicle before starting a journey.

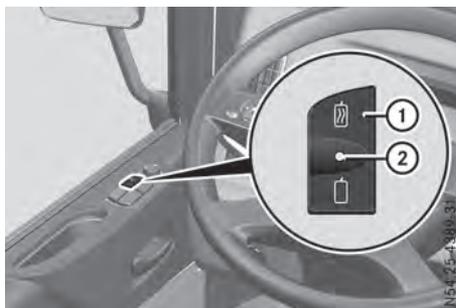
## Adjusting the exterior mirrors



Adjust the starting-off mirror, the curb mirror and the wide-angle mirror by hand.

- ▶ In the case of extra-wide body types, first push or pull the left and right-hand mirror arm into the desired position.
- ▶ Turn the key to the drive position in the ignition lock.
- ▶ Turn switch **③** to position **1** for the left-hand exterior mirror or to position **2** for the right-hand exterior mirror.
- ▶ Press switch **③** forwards or backwards, right or left, until the exterior mirror is correctly set.

## Exterior mirror heating



In damp or cold weather, use the mirror heating to keep the exterior mirrors demisted and free of ice. The curb mirror is not heated.

- ▶ Turn the key to the drive position in the ignition lock.
- ▶ **To switch on:** press the upper section of button ①. Indicator lamp ② in the button lights up.
- ▶ **To switch off:** press the lower section of button ①. Indicator lamp ② in the button goes out.

## Lighting system

### Light switch

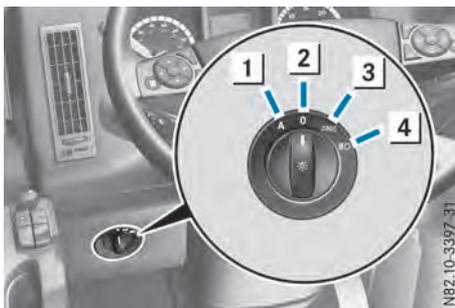
#### Important safety notes

##### WARNING

The rear lamps are concealed when the tailgate is opened. This could mean that other road users may not realize until too late that the vehicle is an obstruction. There is a risk of an accident.

Therefore you should make sure that the vehicle is safeguarded at the rear in accordance with national legal requirements, e.g. with a warning triangle.

#### Overview



##### Light switch

- 1  Automatic headlamp mode
- 2  Lights off
- 3  Side/rear lamps, license plate lighting, identification lights and perimeter/side marker lamps
- 4  Low-beam headlamps or high-beam headlamps

The light switch can be used to switch the vehicle lighting on or off. The high-beam head-

lamps and the headlamp flasher are operated using the combination switch (▷ page 50).

A warning tone sounds if the driver's door is opened while:

- the low-beam headlamps are switched on and the ignition lock is in radio position
- the parking lamps or low-beam headlamps are switched on and the ignition lock is in position 

### Low-beam headlamps

- ▶ Turn the light switch to . The low-beam headlamps and parking lamps are switched on. The  indicator lamp in the instrument cluster lights up.

The low-beam headlamp beams are asymmetrical. For this reason, in countries where vehicles drive on the opposite side of the road to the country where the vehicle is registered, there is a danger of oncoming traffic being dazzled.

### Automatic headlamp mode

##### WARNING

If the light switch is set to  and it is foggy, snowing or there is poor visibility, the low-beam headlamps will not come on automatically. There is a risk of an accident.

In such situations, turn the light switch to .

Automatic headlamp mode is only an aid. The driver is responsible for the vehicle lighting at all times.

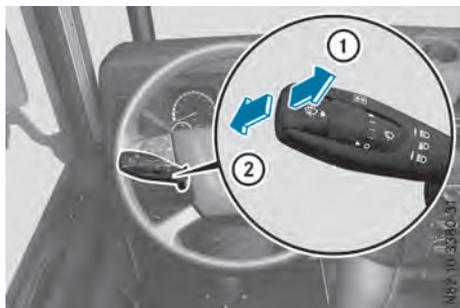
When it is dark or foggy, turn the light switch from  to  in good time. The headlamps may otherwise be switched off temporarily.

- ▶ Switch the ignition lock to the drive position.
- ▶ Turn the light switch to . The low-beam headlamps and parking lamps are switched on or off automatically depending on light conditions. When the low-beam headlamps are switched on, the  indicator lamp in the instrument cluster lights up.

If the rain/light sensor is malfunctioning, the parking lamps and low-beam headlamps are automatically switched on and remain on.

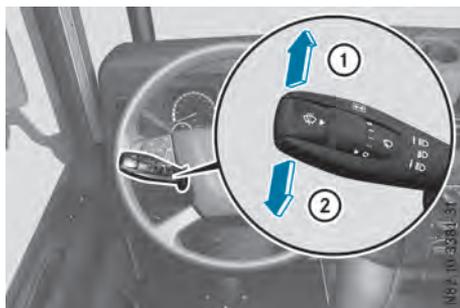
### Combination switch

#### High-beam headlamps/headlamp flasher



- ▶ Turn the key to the drive position in the ignition lock.
- ▶ **To switch on the high-beam headlamps:** first switch on the  low-beam headlamps.
- ▶ Push the combination switch in the direction of arrow ② and engage. The  indicator lamp in the instrument cluster lights up.
- ▶ **To use the headlamp flasher:** briefly pull the combination switch in the direction of arrow ①. The  indicator lamp in the instrument cluster and the high-beam headlamps light up briefly.

#### Turn signals



- ▶ **To indicate:** press and engage the combination switch upwards to indicate right ① or downwards to indicate left ②.

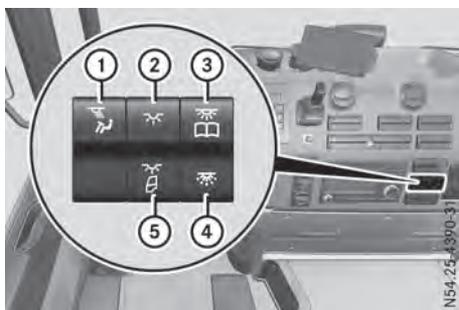
The appropriate turn signal lamps and the  or  indicator lamp in the instrument cluster flash.

The combination switch returns to its original position automatically after large steering movements.

- ▶ **To indicate briefly:** when overtaking or changing lane, press the combination switch briefly in the desired direction to indicate right ① or indicate left ②. The appropriate turn signal lamps and the  or  indicator lamp in the instrument cluster flash five times.
- ▶ **To cancel brief indicating:** press the combination switch briefly in the opposite direction; indicate right ① or indicate left ②. The appropriate turn signal lamps and the  or  indicator lamp in the instrument cluster flash.

### Interior lighting

#### Overview



- ① To switch on/off or to dim the driver's reading lamp
- ② To switch on/off or to dim the interior light
- ③ To switch on/off or to dim the co-driver's reading lamp
- ④ To switch the nightlight (green) on/off
- ⑤ To switch the automatic control of the interior lighting on/off

## Switching the interior lighting on/off

- ▶ **To switch the interior lighting on/off:** briefly press button ②.  
If you switch on the interior lighting by briefly pressing the button, the brightness of the interior lighting is adjusted to approximately 80%.
- ▶ **To dim:** press and hold button ②.  
The interior lighting brightness can be adjusted between 0 and 100%. When the interior lighting reaches maximum brightness, it decreases again. If the interior lighting has been dimmed to the maximum extent, the brightness increases again.

## Automatic control of the interior lighting

- ▶ **To switch on/off:** press and hold button ⑤ until a short tone sounds.  
If you open the driver's or co-driver's door and the interior lighting and entry lighting are switched on automatically, the automatic control has been switched on.

**i** There is a delayed switch-off of the interior lighting if you close the doors while the interior lighting automatic control is switched on.

The interior lighting switches off if:

- you start the engine with the doors closed
- you close the doors while the engine is running
- a door remains open for a longer period

**i** If you manually switch on the interior lighting when the automatic interior lighting control is active, the interior lighting remains on for 15 minutes, or until you:

- open or close a door
- manually switch off the interior lighting

If you manually switch on the interior lighting and the automatic interior lighting control is not active, the interior lighting remains on for 60 minutes.

## Switching the nightlight (green) on/off

The nightlight is used as non-dazzle courtesy lighting while driving.

- ▶ **To switch on/off:** press button ④.

## Switching the driver's/co-driver's reading lamp on/off

- ▶ **To switch on/off:** press button ① (driver) or ③ (co-driver).

## Rotating beacon



- ▶ **To switch on:** press the upper section of the  switch.
- ▶ **To switch off:** press the lower section of the  switch.

When operating the vehicle with the rotating beacons, observe the applicable national regulations for the relevant country. If the required field of vision is obscured by trailers, special bodies or other attachments, make the vehicle safe by using additional lights.

## Notes on replacing bulbs

### WARNING

Bulbs, lamps and connectors can get very hot when operating. If you change a bulb, you could burn yourself on these components. There is a risk of injury.

Allow these components to cool down before changing a bulb.

Bulbs and lamps are an important aspect of vehicle safety. You must therefore ensure that all lamps are functioning at all times. The lamp check supports you in your inspection of the lamps (▶ page 102).

- To prevent a short circuit, switch the lighting system off and the ignition lock to position **0** before replacing a bulb.
- Wear eye protection and gloves when removing defective bulbs.
- Always replace defective bulbs with the specified new bulbs, i.e. those with the correct wattage and voltage.
- Only hold bulbs with a clean, lint-free cloth or a similar item. Do not work with wet or greasy fingers.
- Test the contacts for corrosion and clean them if necessary.
- Check that all seals are positioned correctly, and replace damaged seals.
- If the new bulb does not light up, consult a qualified specialist workshop.
- Have the following bulbs replaced at a qualified specialist workshop:
  - LED high beam
  - LED low beam
  - LED side marker lamps
  - LED perimeter lamp
  - LED identification lighting

## Changing bulbs

### Overview of bulbs and lamps

#### Front lamps

Low-beam head-lamps	LED module
High-beam head-lamps	LED module
Front turn signal lamps	PY21 W 24 V
Side marker lamps	LED module
Perimeter lamp	LED module
Identification lighting	LED module

#### Interior lighting

Roof lamp: interior lighting	P18 W 24 V
Roof lamp: reading lamp	R10 W 24 V
Roof lamp: nightlight	EBS-R4 1.2 W 24 V

#### Additional bulbs

Side marker lamps	LED module
Exit light	W5 W 24 V

#### Front bulbs

##### General information

The following bulbs can be replaced:

- Front turn signal lamps

**i** Daimler Trucks North America recommends that you have headlamp bulbs replaced at a qualified specialist workshop.

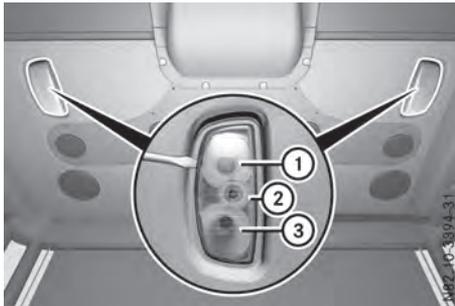
#### Front turn signal lamps



- ▶ Unscrew screw **1** and remove the turn signal lamp.
- ▶ Turn bulb holder **2** counter-clockwise, applying light pressure, and remove it.

- ▶ Turn the bulb counter-clockwise, applying light pressure, and remove it.
- ▶ Insert the new bulb and turn clockwise, applying light pressure.

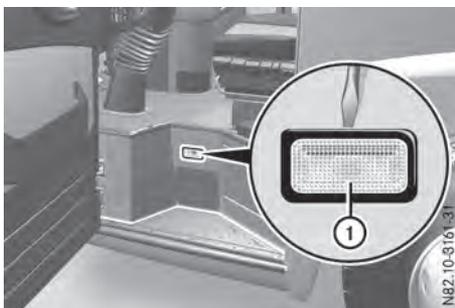
## Interior lighting



- ▶ Pry off the lamp lens with a screwdriver.
- ▶ Unclip the bulb holder.
- ▶ Interior lighting ①/nightlight ②/reading lamp ③: apply light pressure to the bulb, turn counter-clockwise and remove.
- ▶ Insert the new bulb and turn clockwise, applying light pressure.

## Additional bulbs

### Entry lamps on the exit and in the door trim



Entry lamp (example: left exit)

- ▶ Pry off entry lamp ① with a screwdriver.
- ▶ Turn the bulb holder counter-clockwise, applying light pressure and remove it.
- ▶ Turn the bulb counter-clockwise, applying light pressure, and remove it.
- ▶ Insert the new bulb and turn clockwise, applying light pressure.

## Good visibility

### Windshield wipers

#### ! Vehicles with rain/light sensor:

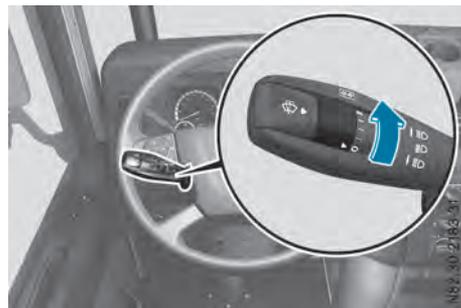
Switch the wipers off in dry weather. Otherwise, dirt or optical effects may cause undesired windshield wiper sweeps. This could then damage the windshield wiper blades or scratch the windshield.

#### ! Switch off the windshield wipers before switching off the engine. Otherwise, when you begin your journey again there will be undesired wiping movements of the windshield wipers. As a result, the wiper blades or the windshield can be damaged, in particular if the windshield is dirty or icy.

Worn or damaged wiper blades result in smearing on the windshield.

This can cause faults in vehicles with rain/light sensors.

Therefore, check the wiper blades on the driver's and co-driver's side regularly and replace worn or damaged wiper blades immediately.



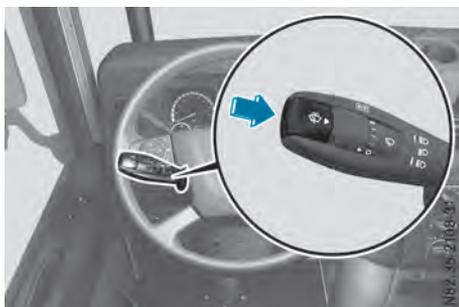
Windshield wiper switch in the combination switch

-  Windshield wipers off
-  Slow intermittent wipe or wiping controlled by the rain sensor
-  Rapid intermittent wipe or wiping controlled by the rain sensor
-  Slow wiper
-  Rapid wiper

- ▶ **To switch on:** turn the key in the ignition lock to the drive position.
- ▶ Turn the windshield wiper switch to the appropriate setting depending on the intensity of the rain.

**Vehicles with rain and light sensor:** if the [•••] or [••••] setting is used, an appropriate wipe frequency is automatically set according to rainfall. In the [••••] position, the rain and light sensor is more sensitive than in the [•••] position, causing the windshield wipers to wipe more frequently. If the rain and light sensor fails, the wiper automatically switches to the wiping interval corresponding to the position of the switch.

### Windshield washer system



Combination switch

- ▶ **Single wipe:** briefly press the  button.
- ▶ **To wipe the windshield using washer fluid:** press and hold down the  button.

### Notes on winter driving

#### Headlamps

**!** If the plastic lenses or headlamps ice up in winter, do not remove the ice layer with an ice scraper. You could otherwise scratch the plastic covers. Only use de-icer spray that is suitable for plastic surfaces.

#### Windshield washer system

At temperatures of approximately 23 °F (-5 °C) to 41 °F (5 °C) with snowfall, direct the air to the windshield using the air distribution control  (▷ page 59). On this setting, the wiper blades on the front windshield are heated. In this way you can prevent smearing or the snow freezing on the wiper blade.

## Voltage supply

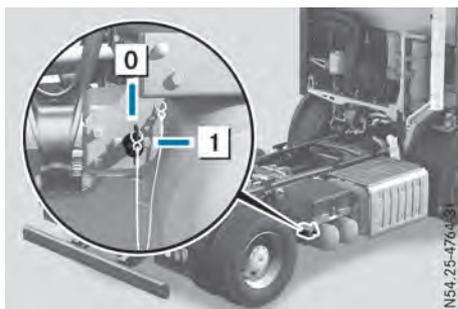
### Battery isolator switch

#### WARNING

If the voltage supply is interrupted with the battery isolator switch, the engine is switched off automatically. Safety-relevant functions may therefore be restricted or unavailable, e.g. power steering, lighting system and ABS. The compressed-air supply fails.

To steer, you will require considerably more force. The wheels could lock during braking. Also, the spring-loaded parking brake can activate if there is a loss of compressed air and the vehicle may then brake uncontrollably. You could lose control of the vehicle. There is a risk of an accident.

Do not operate the battery isolator switch unless the vehicle is stationary and the parking brake is applied.



Battery isolator switch (example: on the right side of the vehicle)

Interrupt the voltage supply with the battery disconnect switch. This prevents short circuits, which could create sparks that might in turn cause a fire or an explosion.

When you have safely parked the vehicle, you can use the battery disconnect switch, e.g. when loading the vehicle in a hazardous goods area. After switching off the ignition and before operating the battery disconnect switch, observe the run-on time of the control units (instrument cluster and MCM). Only use the battery disconnect switch when the vehicle is stationary. Observe the notes in the on-board computer event window, and for vehi-

cles with a retarder, wait for approximately five seconds. If the auxiliary heating is switched on, wait for the auxiliary heating run-on phase to end. Turn the key in the ignition lock to position **0** and remove the key.

In a hazardous situation, the voltage supply can be interrupted using the battery disconnect switch.

### Interrupting the voltage supply

- ▶ Turn the battery disconnect switch clockwise to position **1**.  
All consumers are disconnected from the batteries.

### Reconnecting the voltage supply

- ▶ Turn the battery disconnect switch counterclockwise to position **0**.  
The voltage supply has been restored.

## Sockets

### Overview



Example: 12 V socket

### 12 V power sockets

Do not exceed a load of 180 W (15 A) for the 12 V sockets.

## Practical tips

### Air horn/horn



If sufficient reservoir pressure is available, you can switch on the air horn.

- ▶ **To switch on/off:** press the upper section of the  button.  
If the indicator light in the  button lights up, the horn signal is switched to the air horn. The air horn then sounds if you press the horn.

### Ashtray



Ashtray

You can insert the ashtrays with lids into any cup holder in the cab.

## Stowage spaces and compartments

### WARNING

If you transport objects in the vehicle interior and these are not adequately secured, they could slip or be flung around and thereby strike vehicle occupants. In addi-

tion, cup holders, open stowage spaces and mobile phone brackets may not always be able to hold the objects placed in them in the event of an accident. There is a risk of injury, particularly in the event of sharp braking or sudden changes of direction.

- Always stow objects in such a way that they cannot be tossed about in these or similar situations.
- Always make sure that objects do not protrude out of the stowage spaces, luggage nets or stowage nets.
- Ensure that closable stowage spaces are shut before beginning your journey.
- Always stow and secure heavy, hard, pointed, sharp-edged, fragile or large objects in the cargo compartment.

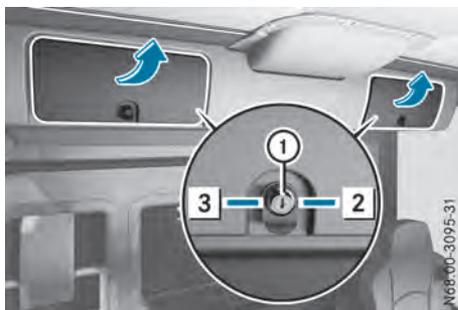
#### WARNING

If the maximum permissible load of the stowage compartment is exceeded, the cover cannot restrain the objects. Objects could be flung from the stowage compartment and hit vehicle occupants. There is a risk of injury, especially in the event of sudden braking or a sudden change in direction. Always comply with the maximum permissible load of the stowage compartment.

#### WARNING

If you exceed the maximum permitted load of the stowage compartment or do not lock the stowage compartment, the cover is unable to restrain the objects. Objects could be thrown onto the road. There is a risk of an accident and injury.

Always observe the maximum load of the stowage compartment. Before starting off, always make sure the stowage compartment is locked.



The load per stowage compartment may not exceed 17 lbs (8 kg).

- ▶ Insert the key into lock ① of the left-hand or right-hand stowage compartment flap.
- ▶ **To lock:** turn the key to position ③. The respective stowage compartment flap is locked.
- ▶ **To unlock:** turn the key to position ②. The respective stowage compartment flap is unlocked.
- ▶ **To open:** remove the key from position ②.
- ▶ Press the lock cylinder and swing the stowage compartment flap upwards.

### Cup holder

#### WARNING

The cup holder cannot hold a container secure whilst traveling. If you use a cup holder whilst traveling, the container may be flung around and liquid may be spilled. The vehicle occupants may come into contact with the liquid and if it is hot, they may be scalded. You may be distracted from the traffic conditions and you could lose control of the vehicle. There is a risk of an accident and injury.

Only use the cup holder when the vehicle is stationary. Only use the cup holder for containers of the right size. Always close the container, particularly if the liquid is hot.



Cup holder on the dashboard

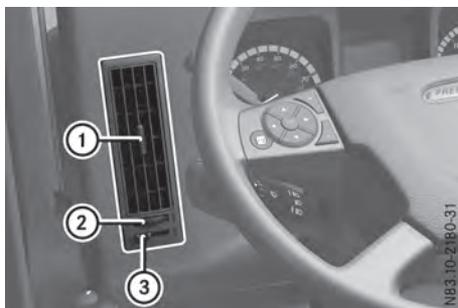


Cup holder on the rear wall

## Useful information

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific deviations are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops: (▷ page 22).



Side air vent (example: left side)

## Operating the climate control systems

### Air vents

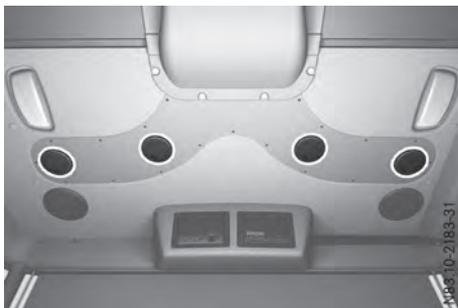
#### WARNING

Very hot or very cold air can flow from the air vents. This could result in burns or frostbite in the immediate vicinity of the air vents. There is a risk of injury.

Make sure that all vehicle occupants always maintain a sufficient distance to the air outlets. If necessary, redirect the airflow to another area of the vehicle interior.



Air vents, center



Roof area air vents

The adjustable center/side air vents as well as the air vents in the roof area can be used for independent, targeted ventilation of the driver's workstation and the co-driver seat. Keep all the air vents and the ventilation grille in the cab free from obstruction to ensure that the air can flow freely into the cab.

► **To open:** turn thumbwheel ② to the  position.

or

► Set the airflow for air vent ③ by opening the air flaps.

- ▶ **To close:** turn thumbwheel ② to the 0 position.
- ▶ **To adjust:** push the air vent to the desired position by handle ①.

or

- ▶ Set the airflow by opening and closing the air flaps.
- ▶ Set the air distribution by turning and tilting the air vent insert.

## Ventilation and heating

### Climate control panel



- ① Air-conditioning button
- ② Auxiliary air conditioning system control knob
- ③ Blower control unit
- ④ Air-distribution control for fresh air/air recirculation
- ⑤ Temperature control

With the climate control panel you can regulate:

- the airflow
- the air distribution
- the air temperature

### Adjusting the airflow



Blower control unit

- ▶ Turn the key to the radio position in the ignition lock.
- ▶ Set the blower control unit to the corresponding blower setting.

If dust or unpleasant odors enter the vehicle:

- ▶ Activate air-recirculation mode (▷ page 61).

Airflow control settings

- 0 Off
- 1-3 Heating/ventilation/cooling
- 4/ Defrosting/ventilating/cooling

### Setting the air distribution



Air-distribution control

- ① Directs air to the windshield, to the side windows and to the center and side air vents
- ② Directs air to the windshield, to the footwell and to the center and side air vents

- ③  Directs air to the footwell as well as the center and side air vents
- ④  Directs the ventilation, center and side air vents

### Selecting air temperature

**!** Operate the temperature control at least once or twice a month. This will ensure that reliability is maintained.



Temperature control

- ▶ Turn the temperature selector clockwise ② to increase or anti-clockwise ① to reduce the temperature.

### Example settings

#### Defrosting the front and side windows



- ▶ Set the climate control panel as shown in the illustration.
- ▶ Close the center air vents (▷ page 58).
- ▶ If the engine has not yet reached operating temperature, switch on the auxiliary heating (▷ page 63).

### Heating



- ▶ Set the climate control panel as shown in the illustration.
- ▶ Open the air vents (▷ page 58) as desired.
- ▶ If the engine has not yet reached operating temperature, switch on the auxiliary heating (▷ page 63).

### Ventilation



- ▶ Set the climate control panel as shown in the illustration.
- ▶ Open the air vents (▶ page 58).

### Air-recirculation mode



If you switch the air-recirculation mode on, the windshields may mist up more quickly, especially at low outside temperatures. Only switch air-recirculation mode on for a short time.

- ▶ Set the climate control panel as shown in the illustration.
- ▶ Close the side windows (▶ page 43).
- ▶ **To switch on:** press air-distribution control ①. Indicator lamp ② lights up.
- ▶ **To switch off:** press air-distribution control ① again. Indicator lamp ② goes out.

### Air-conditioning system

#### General notes

**!** Switch on the air conditioning system at least once a month for about ten minutes. Otherwise, the refrigerant compressor could be damaged.

#### Environmental note

Only switch on the air-conditioning system when necessary. Fuel consumption increases when the air-conditioning system is switched on.

The air-conditioning system can only be operated with the engine running.

In order to ensure optimum functioning, close the windows.

The air-conditioning system cools and dehumidifies the air inside the vehicle. If required, the auxiliary air conditioning system can be switched on to cool and circulate the air in the cab to achieve an optimal climate control and ventilation.

If you deactivate the air conditioning, the air inside the vehicle will not be cooled or dehumidified. Therefore, only deactivate the air conditioning briefly. The windows may otherwise mist up more quickly.

- i** Ventilate the vehicle for a brief period during warm weather or, if the air-conditioning system is switched on, turn the blower switch to air-recirculation mode (▶ page 61). This will speed up the cooling process and the desired interior temperature will be reached more quickly.

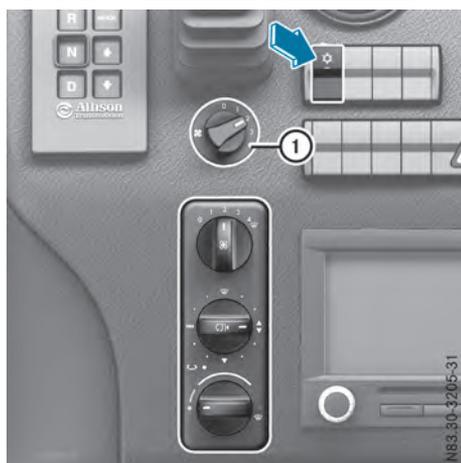
If the windows mist up, set the blower switch back to fresh air mode.

### Switching the air-conditioning system on/off



- ▶ **To switch on:** press the upper section of the  switch. The indicator lamp in the switch comes on.
- ▶ **To set the temperature:** turn the control to the desired temperature.
- ▶ **To switch off:** press the lower section of the  switch. The indicator lamp in the switch goes off.

## Switching the auxiliary air conditioning system on/off



When the air conditioning system is switched on, the auxiliary air conditioning system can be switched on by operating the three-level blower switch. Setting the airflow is carried out using the three settings on the blower switch.

- ▶ Switch on the air-conditioning system.
- ▶ **To switch on:** set rotary switch ① for the auxiliary air conditioning system to one of the three blower settings.
- ▶ **To switch off:** turn the rotary switch to 0.

**i** When the air conditioning system is switched off, by operating the three-level blower switch the auxiliary air conditioning system can be used to simply circulate the air in the cab.

## Example settings

### Cooling



- ▶ Set the climate control panel as shown in the illustration.  
The example settings show cooling in air-recirculation mode. Only use air-recirculation mode briefly for rapid cooling or at very high outside temperatures. If you use air-recirculation mode for too long, this can lead to a lack of oxygen in the cab and cause the windows to mist up. For continuous operation, select fresh air mode.
- ▶ Switch on the air-conditioning system.
- ▶ Switch on the auxiliary air conditioning system if required and select the appropriate blower setting.

## Dehumidifying



- ▶ Set the climate control panel as shown in the illustration.
- ▶ Switch on the air-conditioning system.
- ▶ Close the center air vents (▶ page 58).

## Auxiliary heating

### Important safety notes

The auxiliary heating operates independently of the engine and complements the vehicle heating.

The auxiliary heating heats up the coolant and the vehicle interior and is therefore also easy on the engine and saves fuel.

You can switch the auxiliary heating on/off using the switch clock.

You can use the auxiliary heating to:

- preheat the vehicle interior and defrost the windows
- be able to start the engine better in cold conditions
- heat the coolant, which helps to protect the engine and save fuel
- support the heating while the engine is running and outside temperatures are low

### WARNING

Fuels are highly flammable. Improper handling of fuel creates a risk of fire and explosion.

Avoid fire, open flames, smoking and creating sparks under all circumstances. Switch off the auxiliary heating before refueling.

### WARNING

When the auxiliary heating is switched on, parts of the vehicle, e.g. the exhaust system for the auxiliary heating, can become very hot.

Flammable material such as leaves, grass or twigs may ignite in the following cases.

If they come into contact with:

- hot parts of the auxiliary heating's exhaust system
- the exhaust gas itself

There is a risk of fire.

When the auxiliary heating is switched on, make sure that:

- hot vehicle parts do not come into contact with flammable material
- the exhaust gases can flow freely from the auxiliary heating's exhaust pipe
- the exhaust gas does not come into contact with flammable materials

### DANGER

If you have preselected a switch-on time, the auxiliary heating system switches on automatically.

- Toxic exhaust fumes may accumulate if there is insufficient ventilation, carbon monoxide in particular. This is the case in enclosed spaces, for example. There is a risk of fatal injuries.
- There is a risk of fire and explosion if there are highly flammable materials or flammable materials nearby!

If you park the vehicle in these or similar conditions, always deactivate the preselected switch-on times.

### DANGER

If the exhaust pipe is blocked or sufficient ventilation is not possible, toxic exhaust

fumes may enter the vehicle, especially carbon monoxide. This is the case, for example, if the vehicle gets stuck in snow. There is a risk of fatal injuries.

If you have to leave the engine or the auxiliary heating running, keep the exhaust pipe and the area around the vehicle free of snow. To guarantee a sufficient supply of fresh air, open a door or the roof hatch on the side of the vehicle away from the wind.

### WARNING

You could burn yourself on the exhaust pipe if the auxiliary heating system has been running. There is a risk of injury.

Let the exhaust pipe cool down before carrying out work on the auxiliary heating system.

During operation of the auxiliary heating, a small amount of smoke may develop.

### WARNING

If there is a small amount of smoke, monitor the progress of smoke development.

If a greater amount of smoke, fuel odor or unusual noises develop while operating the auxiliary heating, this may be due to a mechanical malfunction.

In this case, observe the following instructions:

- there is a risk of fire and injury.
- switch off the auxiliary heating.
- remove the fuse of the auxiliary heating.
- have the auxiliary heating checked immediately at a qualified specialist workshop.

**!** If the auxiliary heating is not used for an extended period, deposits could develop in the auxiliary heating fuel system as a result of heating effects and condensation. These deposits cause malfunctions in the auxiliary heating. Have the auxiliary heating checked and repaired at a qualified specialist workshop before operating again.

**!** Switch on the auxiliary heating at least once a month for about ten minutes. Otherwise, the auxiliary heating could be damaged.

**!** The auxiliary heating may only be operated with conventional diesel fuel. Operating with 100 % fatty acid methyl ester (FAME) fuel or diesel fuel with an admixture of more than 10 % fatty acid methyl ester (FAME) fuel can lead to malfunctions and is therefore not permitted.

When transporting hazardous materials, always observe the relevant safety regulations. Always place objects a sufficient distance from the auxiliary heating vent.

## Forced shutdown

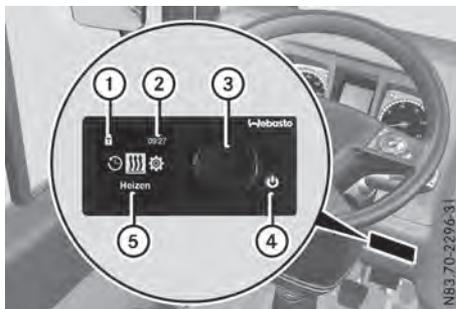
**!** When the auxiliary heating is in heating mode and in the cooling phase, the power supply should only be interrupted with the disconnect switch if danger threatens. If the power supply is interrupted in heating mode, the cooling phase cannot be switched on and as a result the auxiliary heating could be damaged.

## Operation using the switch clock

### Overview

Use the timer to:

- switch heating mode on/off
- set the operating time between 10 and 120 minutes or continuous operations
- set up to 21 preset times/timer in total



- ① Activated preselection period
- ② Clock
- ③ Controller
- ④ Instant start button with status display
- ⑤ Symbol/designation menu item

## Status display

The switch clock has a control LED in the instant start button which signals the current state of the auxiliary heating.

The colors in which the control LED lights up/ flashes have the following meanings:

- white - heater switched off/control panel activated
- green - heating mode enabled
- green flashing - heating mode program time activated
- red - malfunction

If the heater is switched off, the switch clock switches to the idle state 60 seconds after the last operation. The display and the status display are then switched off automatically.

## Back function

The back function serves to quit a selected menu or menu item.

- ▶ Turn the controller counter-clockwise until "Back" is shown in the display.
- ▶ Press the controller.  
The settings will be saved.  
The higher menu level is shown in the display.

## Setting the time and day of the week

Turn the controller to select a function or make a setting and confirm the selection/ setting by pressing the controller.

- ▶ **To set the day:** select the "Settings" menu and confirm.
- ▶ Select the "Day" menu item and confirm.
- ▶ Set and confirm the day of the week.
- ▶ **To set the time:** select the "Settings" menu and confirm.
- ▶ Select the "Time" menu item and confirm.
- ▶ Select and confirm the time format (12 or 24 hours).  
The time flashes on the display.
- ▶ Set and confirm the hours.  
The minutes display flashes in the display.
- ▶ Set and confirm the minutes.

## Setting the instant start

The instant start button is used to start the heating mode without having to make any further settings.

The instant start can be set in the "Settings" menu.

Turn the controller to select a function or make a setting and confirm the selection/ setting by pressing the controller.

- ▶ Select the "Settings" menu and confirm.
- ▶ Select the "Instant start" menu item and confirm.  
The set operating mode is displayed.
- ▶ Select the "Heating" function and confirm.  
The operating time flashes on the display.
- ▶ Set and confirm the desired operating time (hour).  
The minutes display flashes in the display.
- ▶ Set and confirm the desired operating time (minute).  
The selected settings are stored for the instant start button.

## Switching instant start on/off

- ▶ **To switch on:** press the instant start button.  
The display shows the "Heating" function and the set remaining time.  
The control LED in the instant start button lights up green.
- ▶ **To switch off:** press the instant start button again.  
The heating mode is switched off.  
The control LED lights up white.

## Switching the heating mode on/off in the menu

Turn the controller to select a function or make a setting and confirm the selection/ setting by pressing the controller.

- ▶ **To switch on:** select the "Heating" menu and confirm.  
The operating time flashes on the display.
- ▶ Set and confirm the desired operating time (hour).  
The minutes display flashes in the display.
- ▶ Set and confirm the desired operating time (minute).  
The heating mode is started.  
The display shows the "Heating" function and the set remaining time.

The control LED in the instant start button lights up green.

- ▶ **To switch off:** Press the instant start button.

The heating mode is switched off.

The control LED lights up white.

- i** If a longer remaining time is desired, a longer operating time must be reset. No changes can be made after a minimum running time of 10 minutes. An increase is only possible after switching off and on again.

### Setting the preselected heating mode/timer

You can use the switch clock to set up to three preselection periods/times per day (maximum seven days).

If the program time is activated, the auxiliary heating switches on automatically at the set time.

- i** Only one program time can be activated at a time.

#### DANGER

If you have preselected a switch-on time, the auxiliary heating system switches on automatically.

- Toxic exhaust fumes may accumulate if there is insufficient ventilation, carbon monoxide in particular. This is the case in enclosed spaces, for example. There is a risk of fatal injuries.
- There is a risk of fire and explosion if there are highly flammable materials or flammable materials nearby!

If you park the vehicle in these or similar conditions, always deactivate the preselected switch-on times.

Preselection times can only be set when the heating mode is switched off.

Turn the controller to select a function or make a setting and confirm the selection/setting by pressing the controller.

- ▶ **To set the program time:** select the "Timer" menu and confirm.
- ▶ Select the "Add timer" menu item and confirm.

- ▶ Select and confirm the day of the week.
- ▶ Set and confirm the desired "Switch-on time" (hour).
- ▶ Set and confirm the desired "Switch-on time" (minute).
- ▶ Set and confirm the desired "Switch-off time" (hour).
- ▶ Set and confirm the desired "Switch-off time" (minute).
- ▶ Select the "Heating" function and confirm. The set timer is saved and shown in the display.
- ▶ Confirm to activate the timer. "Activate" is shown in the display.
- ▶ Confirm again. The "T" symbol is displayed in the main menu.

The control LED in the instant start button flashes green ("Heating" timer active).

### Activating, deactivating, editing or deleting the timer

Turn the controller to select a function or make a setting and confirm the selection/setting by pressing the controller.

- ▶ Select the "Timer" menu and confirm. The saved timers are shown in the display.
- ▶ Select and confirm the desired timer.
- ▶ Select the desired option, e.g. "Manage" and confirm.

- i** If you select the "Delete all" option, "OK" is shown in the display. Confirm again to delete all saved timers.

### Airflow, air distribution and temperature

If the instant or preselected heating mode is active, the blower switches to at least the air volume level . In addition, the preset minimum temperature is set.

- ▶ Turn the temperature control to the right until the maximum temperature is set (▷ page 60).
- ▶ Set the air distribution control and air vents as required (▷ page 58).
- ▶ Set the airflow control while driving as required (▷ page 59).

## Problems with the auxiliary heating

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The auxiliary heating shows a fault code on the display in the event of a malfunction. If the display shows a fault code not listed here, contact a qualified specialist workshop.

Display messages	Possible causes/consequences and ► Solutions
T84	<p>The charge level is too low.</p> <ul style="list-style-type: none"><li>► Charge the battery (► page 168).</li></ul> <p>If the malfunction persists:</p> <ul style="list-style-type: none"><li>► Inform a qualified specialist workshop.</li></ul>
Teb	<p>Time of malfunction</p> <p>If there is a voltage drop of more than eight minutes, the date and time must be reset.</p> <ul style="list-style-type: none"><li>► Set the date/time on the switch clock.</li></ul> <p>If the malfunction persists:</p> <ul style="list-style-type: none"><li>► Inform a qualified specialist workshop.</li></ul>

## Useful information

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific deviations are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops: (► page 22).

## Instrument cluster

### Important safety notes

#### WARNING

If you operate information systems and communication equipment integrated in the vehicle while driving, you will be distracted from traffic conditions. You could also lose control of the vehicle. There is a risk of an accident.

Only operate the equipment when the traffic situation permits. If you are not sure that this is possible, park the vehicle paying attention to traffic conditions and operate the equipment when the vehicle is stationary.

#### WARNING

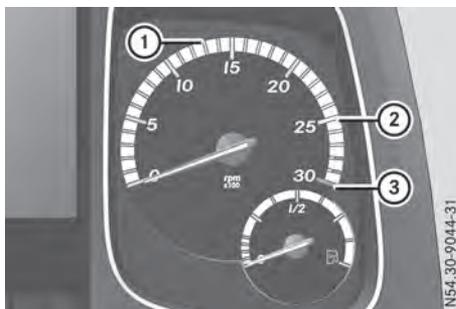
If the instrument cluster has failed or malfunctioned, you may not recognize function restrictions in systems relevant to safety. The operating safety of your vehicle may be impaired. There is a risk of an accident. Pull over as soon as it is safe to do so and consult a qualified specialist workshop.

You should therefore make sure your vehicle is operating safely at all times. Otherwise, you could cause an accident by driving an unsafe vehicle. If your vehicle is not operating safely, stop immediately, paying attention to the road and traffic conditions.

Observe the legal requirements for the country you are currently in while operating the instrument cluster.

## Rev counter

-  If you exceed the maximum permissible engine speed, the warning tone sounds. You should not drive and change gear by the sound of the engine, but according to the engine speed shown in the rev counter. Avoid driving in the red overrevving range. This could lead to engine damage.



Rev counter (example: instrument cluster with large screen)

- ① Economical speed range (green)
- ② Engine brake operating range (yellow)
- ③ Overrevving range, danger of engine damage (red)

If the  indicator lamp in the instrument cluster lights up, the engine speed is too high, e.g. if you select a low gear when shifting down. Observe further information in the event window of the on-board computer.

► Decelerate using the service brake.  
or

- Shift up a gear.  
The  indicator lamp in the instrument cluster goes out.

General notes on the rev counter:

- Observe the rev counter while driving and stay within economical speed range ①. In some situations, it may make sense to operate the engine outside economical engine speed range ①, e.g. on uphill gradients or when overtaking.
- If you drive the vehicle within economical engine speed range ①, you achieve low fuel consumption and reduced wear.
- In engine braking mode, use yellow engine speed range ②. The highest engine braking effect will be achieved just before red overrevving range ③.

- When driving downhill, make sure that the engine speed does not rise into red overrevving range ③.
- Idling speed is set automatically depending on the coolant temperature.
- When the vehicle is stationary, the engine is running and the transmission is in neutral, throttle response is intentionally slow.

### DEF display



DEF display (example: instrument cluster with large screen)

The DEF reducing agent is required for reduction of engine emissions.

The operating permit is invalidated if you continue to use the vehicle without DEF. The legal consequence of this is that the vehicle may no longer be operated on public roads.

In the **Range** menu window of the  trip data menu, you can display your vehicle's range together with the current fuel tank content (▷ page 75).

If the DEF level has dropped to approximately 10% of the tank capacity, a corresponding event window appears in the on-board computer. Refill the DEF tank in good time (▷ page 152).

If the yellow event window is ignored and the DEF level drops further to approximately 2.5%, engine power output may be reduced.

When the DEF tank has run dry, the event is stored and is signaled by the  indicator lamp when starting the engine as an emission-relevant fault (▷ page 70). Additionally, speed may be limited to approximately 12 mph (20 km/h).

### Fuel gauge



Fuel gauge (example: instrument cluster with large screen)

If the  fuel level has dropped to approximately 14% of the tank capacity, the needle enters the red reserve area. The on-board computer displays a corresponding event window with the  symbol.

In the **Range** menu window of the  trip data menu, you can display your vehicle's range together with the current fuel tank content (▷ page 75).

### Clock and outside temperature



Clock and outside temperature (example: instrument cluster with large screen)

You should pay special attention to road conditions when temperatures are around freezing point.

There is a delay in displaying a change in outside temperature.

► Turn the key to the drive position in the ignition lock.

The display in the speedometer shows time ① and outside temperature ②.

Depending on the country of delivery,

time ① is displayed in 12h/24h mode and outside temperature ② in Celsius (°C)/ Fahrenheit (°F).

The clock and outside temperature gauge also display the **Truck info** menu window in the

trip data menu  (▷ page 75). You can change the clock mode and the temperature unit in the **Menu** menu window within the  settings menu (▷ page 81).

## Check Engine indicator lamp

### Indicator lamp

Problem	Possible causes/consequences and ► Solutions
Indicator lamp  flashes.	After you have switched the ignition lock into drive position, the indicator lamp indicates the system's status by means of a sequence of flashes. If there are no malfunctions, the indicator lamp goes out after the engine is started (▷ page 71).
The  indicator lamp lights up.	<p>The exhaust gas aftertreatment is malfunctioning or has an emissions-related fault. The malfunction or defect may damage the exhaust gas aftertreatment.</p> <ul style="list-style-type: none"> <li>► If the on-board computer displays an event window, observe the information.</li> <li>► Have the exhaust gas aftertreatment checked immediately at a qualified specialist workshop.</li> </ul>
<p>The  indicator lamp lights up.</p> <p>The on-board computer shows an event window and the  indicator lamp in the display.</p>	<p>An emissions-related malfunction has been detected.</p> <ul style="list-style-type: none"> <li>► Follow the instructions in the event window.</li> <li>► Have the exhaust gas aftertreatment checked immediately at a qualified specialist workshop.</li> </ul> <p>If you do not follow the instructions in the event window, a reduction in the engine power output may be imposed, as per the message displayed:</p> <ul style="list-style-type: none"> <li>• after approximately ten hours, e.g. if a low-grade diluted reducing agent is being used or if the dosage is incorrect</li> <li>• after approximately 36 hours, e.g. if the exhaust gas recirculation or the security system is faulty</li> </ul> <p>In certain cases, engine output may be reduced even earlier.</p>

Problem	Possible causes/consequences and ► Solutions
<p>The  indicator lamp lights up.</p> <p>The engine power output is reduced. The on-board computer also shows an event window and the  indicator lamp in the display.</p>	<p>You have not rectified a detected emissions-related malfunction.</p> <ul style="list-style-type: none"> <li>► Follow the instructions in the event window.</li> <li>► Drive carefully to the nearest qualified specialist workshop and have the malfunction rectified immediately.</li> </ul> <p>If you do not follow the instructions in the event window, a speed limitation may be imposed, as per the message displayed:</p> <ul style="list-style-type: none"> <li>• after approximately 20 hours after the first occurrence of a malfunction, e.g. if a low-grade diluted reducing agent is being used or if the dosage is incorrect</li> <li>• after approximately 100 hours after the first occurrence of a malfunction, e.g. if the exhaust gas recirculation or the security system is faulty</li> </ul> <p>In certain cases, speed limitation may be imposed even earlier.</p>
<p>The  indicator lamp lights up.</p> <p>The speed is limited to approximately 12 mph (20 km/h). The on-board computer also shows the  indicator lamp in the status area.</p>	<p>DEF has been used up or a detected emissions-related malfunction has not been rectified.</p> <ul style="list-style-type: none"> <li>► Follow the instructions in the event message.</li> <li>► Drive carefully to the nearest filling station and refill DEF (► page 152).</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>► Drive carefully to the nearest qualified specialist workshop and have the malfunction rectified immediately.</li> </ul> <p>The operating permit is invalidated if you continue to use the vehicle.</p>

**i** Once the DEF tank has been refilled or the fault rectified, full engine output is restored. If the system check does not detect any other faults, the  indicator lamp goes out after the system's status indicator. It may take several journeys to complete the system check.

### Exhaust gas aftertreatment status indicator

The status of the exhaust gas aftertreatment is signaled to facilitate quick checking by local authorities.

There are three successive signaling phases shown by the  indicator lamp. These commence when you have turned the key in the ignition lock to the drive position, and end when the engine is started.

The first phase is the instrument cluster display check. The indicator lamp lights up for approximately five seconds and then goes out for approximately ten seconds. The second phase indicates the system check status. The indicator lamp either lights up again for five seconds or flashes for approximately five seconds. Subsequently, it goes out for approximately five seconds.

In the third phase, the indicator lamp indicates whether any emissions-related malfunctions have been detected.

If no emissions-related malfunctions are detected, the indicator lamp lights up briefly and then goes out for approximately five seconds. This flashing sequence is repeated until the engine is started.

If an emissions-related malfunction is detected, the indicator lamp flashes three times and then goes out for approximately five seconds. This flashing sequence is repeated until the engine is started. The indicator lamp remains lit for approximately 15 seconds after the engine is started.

The indicator lamp lights up and remains lit after the engine is started if:

- a serious emissions-related malfunction is detected
- an emissions-related malfunction is still present, and more than 200 hours have elapsed since detection

## On-board computer

### Operating the on-board computer

#### WARNING

If you operate information systems and communication equipment integrated in the vehicle when driving, you may be distracted from the traffic situation. You could also lose control of the vehicle. There is a risk of an accident.

Only operate this equipment when the traffic situation permits. If you are not sure that this is possible, park the vehicle paying attention to traffic conditions and operate the equipment when the vehicle is stationary.

Observe the legal requirements for the country you are currently in while operating the on-board computer.

The on-board computer only shows messages or warnings from certain systems in the display. You should therefore make sure your vehicle is operating safely at all times. Otherwise, you could cause an accident by driving an unsafe vehicle. If your vehicle is not operating safely, stop immediately, paying attention to the road and traffic conditions.



- ① On-board computer display
- ② Buttons
- ▶ Selects the next main menu/next entry in the input window; increases or resets value
- ◀ Selects the previous main menu/previous entry in the input window or decreases value
- ▼ Next menu window/next menu bar down in the input window
- ▲ Previous menu window/next menu bar up in the input window
- OK Opens and closes input window/acknowledges event window
- M Stores/displays favorite menu window

Navigate through the on-board computer menus using the left group of buttons on the multifunction steering wheel.

Whilst you are driving, the on-board computer provides information about:

- Fuel consumption
- Trip time
- Operating conditions
- Maintenance due dates
- Malfunctions
- Causes of malfunctions
- Measures to be taken
- ▶ Turn the key to the radio position in the ignition lock.
- ▶ Turn the key to the drive position in the ignition lock.

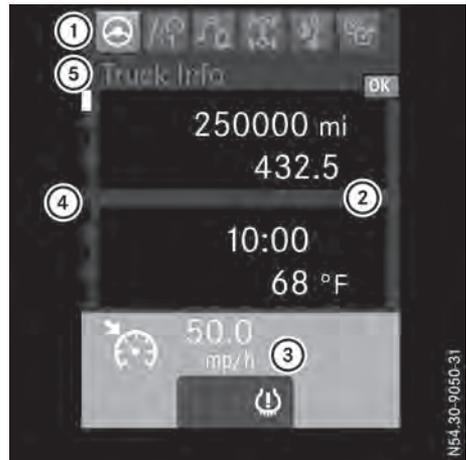
The on-board computer shows the last active menu window, e.g. the **Truck info** menu window in the  trip data menu.

If a malfunction is detected, the on-board computer will display the events in an event window first. In addition to the event window, an indicator lamp may light up in the instrument cluster or in the status area of

the on-board computer. If there are several messages, the on-board computer shows them one by one according to priority level. If further information on the malfunction is available in the event window, the event window shows the  symbol. You can display the information using the  button.

- ▶ Clear the event window by pressing the .
  - ▶ **To scroll through the main menus:** press  or .
  - ▶ **To display further menu windows in the main menu:** press  or .
  - ▶ **To open and close the input window:** when a menu window displays the  symbol, press .
  - ▶ **To select menu bars in the input window:** press  or .
  - ▶ **To change the value or select an entry in the input window:** press  or .
- i** If you call up a particular menu window regularly, e.g. the engine oil level check, save it on the .
- ▶ **To save a favorite menu window:** call up the desired menu window and press the  button for approximately 2 seconds.
  - ▶ **To display the favorite menu window:** briefly press the .

## Areas in the display



Areas in the display (example: Truck Info menu window)

**Register and title bar:** register  shows the main menu. The active main menu is represented in white. Register  shows you the number of menu windows (submenus) and which window is currently selected. Title bar  shows the name of the active menu window.

**Display panel:** the on-board computer displays the menu window or event window in display panel . Event windows are displayed automatically and contain messages, e.g. **Top up coolant**, or information about malfunctions, e.g. **Battery charge level low**. In addition to the event window, an indicator lamp may light up in status area  of the on-board computer or in the instrument cluster. If you can confirm the event window using the  button, the event window is hidden. An indicator lamp that lights up in status area  of the on-board computer or in the instrument cluster does not go out after the event window is confirmed.

**Status area:** status area  shows, for the selected driving system:

- Cruise control: the  symbol and the set speed, e.g. **50 miles/h** (▷ page 122)
- Distance control assistant: the  symbol and the set speed, e.g. **50 miles/h** (▷ page 124)

- Limiter: the  symbol and the set limit speed, e.g. 30 miles/h (▷ page 120)
- Lane Keeping Assist: the lane marking (▷ page 134)

The status of the driving system, e.g. on or off, is represented in color.

When automatic transmission is in the neutral position, status area ③ shows the  (▷ page 114) symbol.

In addition, status area ③ contains an indicator lamp panel. In the event of a malfunction, warning or operating information, an indicator lamp automatically lights up in status area ③ of the on-board computer. Depending on the priority of the malfunction, warning or operating information, the indicator lamp lights up in different colors. The indicator lamp may also light up in addition to the event window.

### Menus at a glance

The number and order of the menus depends on your vehicle's equipment and the type of vehicle itself.

<b>Trip data</b> 	(▷ page 75)
<b>Truck info</b>	Displays the time and outside temperature, displays/resets the trip meter and total distance recorder
<b>Since start - all</b>	Displays/resets trip data from start
<b>Range</b>	Displays the range of fuel and DEF levels
<b>Since reset - all</b>	Displays/resets trip data from reset 1
<b>Since reset - drive</b>	Displays/resets trip data from reset 2

<b>Driving mode</b> 	(▷ page 76)
<b>Speed</b>	Displays vehicle speed
<b>Navigation</b>	Displays route guidance

<b>Driving mode</b> 	(▷ page 76)
<b>Assistance</b>	<ul style="list-style-type: none"> <li>• Displays the distance to the vehicle in front (distance control assistant)</li> <li>• Displays lane markings (Lane Keeping Assist)</li> </ul>
<b>Video</b>	Displays/adjusts the reversing camera

<b>Audio and communications</b> 	(▷ page 76)
<b>Alarm clock</b>	<ul style="list-style-type: none"> <li>• Displays the alarm time</li> <li>• Sets the alarm clock</li> <li>• Switches off the alarm</li> </ul>
<b>Telephone</b>	Displays the telephone book and the calls list/calls numbers
<b>Audio</b>	<ul style="list-style-type: none"> <li>• Controls the volume</li> <li>• Displays the audio source</li> <li>• Changes the audio source, title, station or frequency</li> <li>• Operates the MP3 browser</li> </ul>

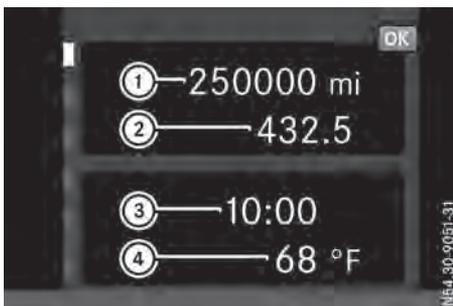
<b>Operation and maintenance</b> 	(▷ page 77)
<b>Axles</b>	<ul style="list-style-type: none"> <li>• Displays the axle loads</li> <li>• Sets the axle load indicator</li> </ul>
<b>Level control</b>	<ul style="list-style-type: none"> <li>• Raises/lowers the chassis</li> <li>• Sets the driving level</li> <li>• Stores/calls up a chassis height</li> </ul>
<b>Maintenance</b>	Displays/resets the maintenance point and due date

<b>Monitoring info</b> 	(▷ page 80)
<b>Reserve pressure</b>	Displays the reservoir pressure in brake circuits  and 
<b>Coolant</b>	Displays the coolant temperature
<b>Engine</b>	Displays the engine oil level and engine operating hours
<b>Events</b>	Displays events
<b>Diagnosis</b>	Displays diagnostics data

<b>Settings</b> 	(▷ page 81)
<b>Menu</b>	Sets the units system (display of e.g. °C or °F)
<b>Lighting</b>	<ul style="list-style-type: none"> <li>Adjusts the brightness of the instrument lighting and the audio display lighting</li> <li>Sets/switches off the exterior lighting delayed switch-off</li> </ul>
<b>Language</b>	Sets the display language
<b>Service products</b>	Displays/sets service product values

### Trip data menu

#### Truck info menu window



Truck info menu window

- ① Total distance recorder
- ② Trip meter

- ③ Time
- ④ Outside temperature

▶ **To display the total distance recorder, trip meter, time and outside temperature:** use the  or  button to scroll to  trip data.

▶ **To reset the trip meter:** press .

The input window displays the message **Reset trip meter? No/Yes.**

▶ Use the  button to select the **Yes** menu bar and press the  or  button to confirm.

#### Menu window from start - all/from reset - all/from reset - drive

The **Since start - all** trip data contains performance data from the start of the journey. If you leave the vehicle parked for more than 4 hours, the values are reset automatically.

The **Since reset - all** or **Since reset - drive** trip data contains performance data from the last time the menu window was reset.

▶ Use the  or  button to scroll to  trip data.

▶ **To display trip data:** use the  or  button to scroll to the **Since start - all**, **Since reset - all** or **Since reset - drive** menu window.

The menu window shows:

- the distance covered
- the driving time
- the average vehicle speed
- the average fuel consumption

▶ **To reset the trip data:** press .

The input window shows, for example, **Reset values for: Since start - all No/Yes.**

▶ Use the  button to select the **Yes** menu bar and press the  or  button to confirm.

#### Range menu window

The on-board computer calculates the approximate range based on current levels of fuel and DEF. The range depends largely on your driving style.

► Use the  or  button to scroll to  trip data.

► **To display the range:** use the  or  button to scroll to the **Range** menu window.

The menu window displays the approximate range of the  fuel level and the DEF level. In addition, the menu window also shows the current fuel consumption as a bar display underneath the range. When the vehicle is stationary, the bar display changes to display the fuel consumption for the stationary vehicle (US gal/h). The mark above the bar display corresponds to the **Since start - all** average consumption.

The menu window displays the range up to **30 miles**. For lower values, the on-board computer displays **<30 miles**.

## Driving mode menu

### Speed menu window

► **To display vehicle speed:** use the  or  button to scroll to  driving mode.

### Assistance menu window

The **Assistance** menu window is available on vehicles with distance control assistant and/or Lane Keeping Assist. The on-board computer displays warnings and the status of the driving systems in color. Please first read the Operating Instructions on the distance control assistant (▷ page 124) and on Lane Keeping Assist (▷ page 134)

► Switch on the distance control assistant and/or Lane Keeping Assist.

► Use the  or  button to scroll to  driving mode.

► **To show distance, speed and lane markings:** use the  or  button to scroll to the **Assistance** menu window.

The menu window shows:

- The vehicle speed of the detected vehicle and the distance to the detected vehicle (distance control assistant)
- The lane markings (Lane Keeping Assist)

## Video menu window

The **Video** menu window is available for vehicles fitted with a video input without a Bluetooth® radio/ navigation system, Comfort.

► Use the  or  button to scroll to  driving mode.

► **To display the camera image:** use the  or  button to scroll to the **Video** menu window.

The display in the instrument cluster displays the camera image.

► **To adjust the brightness/contrast:** press the  button.

By means of a bar display, the input window displays the set brightness.

► Select the bar display for brightness/contrast using the  or  button.

► Adjust the brightness/contrast of the camera image using the  or  button.

**i** Information on the Blind Spot Assist camera images can be found in the "Blind Spot Assist" section (▷ page 135).

## Audio and communications menu

### Alarm clock menu window

If your vehicle is equipped with Mercedes-Benz audio equipment, you can set the radio as an alarm in alarm mode. If the alarm mode is set to **Radio** and the audio equipment is switched on at the set alarm time, no further signaling takes place.

► **To display alarm time:** use the  or  button to scroll to  audio and communications.

The menu window shows:

- the day of the week and the date
- the alarm time for alarm clock 
- the alarm time for alarm clock 

► **To set the alarm clock:** press the  button.

The input window shows:

- the alarm clock **Alarm clock 1/Alarm clock 2**
- the alarm mode **Audio/Buzzer/Off**
- the hour of the alarm time, e.g. **09 hr**
- the minute of the alarm time, e.g. **23 min**

- ▶ Select the desired menu bar with the  or  button.
- ▶ Change the value with the  or  button.
- ▶ **i** If you press and hold  or , the hours/minutes scroll quickly.
- ▶ **To stop the alarm:** press the  button.
- ▶ **i** The alarm switches off automatically after two minutes.

## Audio menu window

### Audio source, title/station/frequency, MP3 browser

The **Audio** menu window is available on vehicles with Mercedes-Benz audio equipment.

- ▶ Switch on the CD radio or the radio/navigation system .
- ▶ Use the  or  button to scroll to  audio and communications.
- ▶ **To display the audio source and the track/station:** use the  or  button to scroll to the **Audio** menu window.
- ▶ **To change the audio source or title/station/frequency:** press the  button. Depending on the active audio source, the input window displays:
  - the name of the audio source
  - the station or frequency when in radio mode
  - the title when in CD, USB or Bluetooth® mode
  - the AUX source when in audio AUX mode
  - the waveband when in radio mode
  - the MP3 browser when in CD or USB mode
- ▶ Select the desired menu bar with the  or  buttons.
- ▶ Change the audio source, track or station with the  or  buttons.

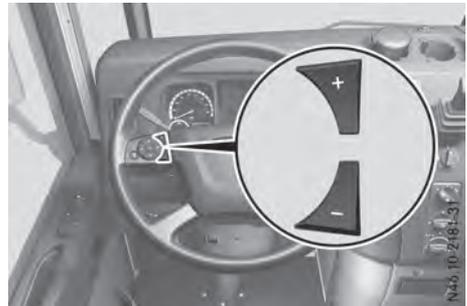
For MP3 files on audio CDs or on USB storage devices, you can navigate in the files and play MP3 files.

### Operating the MP3 browser

- ▶ Open the **Audio** menu window.
- ▶ Press the  button.
- ▶ Press the  or  button to select the MP3 browser menu bar.

- ▶ **To open the MP3 browser:** press the  or  button.
- ▶ **To switch between MP3 files/folders:** press the  or  button.
- ▶ **To select an MP3 file or to open a folder:** press the  button.
- ▶ **To close the current folder:** briefly press the  button.
- ▶ **To close the MP3 browser:** press and hold the  button.

## Adjusting the volume



Buttons on the multifunction steering wheel

In audio mode, you can adjust the volume at any time.

- ▶ **To increase or decrease the volume:** press  or .

## Operation and maintenance menu

### Axles menu window

#### Displaying the axle loads

The axle load indicator is not calibrated, nor is it a system capable of calibration. The measured data only provides an approximate guide. The values are not suitable for official use. In order to avoid inaccuracies in the measurement, make sure that the vehicle is uniformly laden.

When the chassis is at driving level, the axle load measuring system determines the axle load from the pressure in the air spring bellows.

- ▶ Park the vehicle on a level surface.
- ▶ Apply the parking brake.

- ▶ Set the driving level (▷ page 142).
- ▶ Using the  or  button, scroll to  operation and maintenance.  
The menu window shows the vehicle axles and the axle load.

### Setting the axle load indicator

You can adjust the axle load indicator if there is a notable difference between the axle load indicator and the weighbridge results.

- ▶ Park the vehicle on a level surface.
- ▶ Apply the parking brake.
- ▶ Set the driving level (▷ page 142).
- ▶ Drive the vehicle onto the single axle weigh-bridge.
- ▶ Using the  or  button, scroll to  operation and maintenance.  
The menu window shows the axle loads and the overall axle load.
- ▶ Press the  button.  
The input window shows the axle loads.
- ▶ Select the desired axle with the  or  button.
- ▶ Using the  or  button, correct the axle load according to the value shown by the single axle load measuring device.

### Level control menu window

#### Important safety notes

##### WARNING

When you drive with the chassis lowered or raised, the vehicle's braking and driving characteristics can be significantly impaired. You could also exceed the permissible vehicle height if the chassis is raised. There is a risk of an accident.

Adjust the vehicle level before pulling away.

Raise/lower the chassis frame to pick up/set down demountable bodies.

If you continue a journey after having changed the chassis height, lower/raise the chassis frame to driving level.

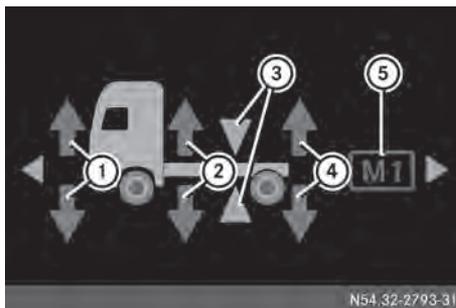
When the  yellow indicator lamp in the instrument cluster lights up, the chassis is not at driving level or the level control is malfunctioning. Observe the additional information in the event window.

### Adjusting the level control

The **Level control** menu window is available on vehicles with air suspension. You can operate the level control when the vehicle is stationary or when the vehicle is in motion up to approximately 18 mph (30 km/h).

Depending on your vehicle's equipment, you control the function of the level control system using:

- the control panel on the driver's seat (▷ page 140)
- the on-board computer
- ▶ Using the  or  button, scroll to  operation and maintenance.
- ▶ Use the  or  button to scroll to the **Level control** menu window.
- ▶ Press the  button.  
The on-board computer displays the input window.



Level control input window (example: vehicle with 2 axles)

- ① Preselection: to raise/lower the front axle
- ② Preselection: to raise/lower the entire vehicle
- ③ Preselection: to set the driving level
- ④ Preselection: to raise/lower the rear axle
- ⑤ Memory position M1 or M2 for chassis height

- ▶ **To raise/lower the chassis:** using the  or  button, select front axle ①, entire vehicle ② or rear axle ④.
- ▶ Press the  button to lower the chassis or the  button to raise it. The  indicator lamp in the instrument cluster lights up.
- ▶ **To interrupt/end the raising or lowering operation:** press the  button.

- ▶ **To select the driving level:** use the  or  button to select preselection driving level ③.
- ▶ Briefly press the  or  button. The chassis is raised or lowered automatically to the driving level. When the chassis is at driving level, the  indicator lamp in the instrument cluster goes out.
- ▶ **To store the chassis height:** raise or lower the chassis to the desired height.
- ▶ Using the  or  button, select memory position M1 or M2 for chassis height ⑤.
- ▶ Press the  button for approximately two seconds. The current height of the chassis frame is stored under the corresponding memory position M1 or M2.
- ▶ **To call up the chassis height:** using the  or  button, select memory position M1 or M2 for chassis height ⑤.
- ▶ Call up the selected memory position by pressing . The chassis will be raised/lowered automatically to the stored height.

You can find more information about level control in the "Driving mode" section (▷ page 140).

## Maintenance menu window

**!** Confirming maintenance work that has not been performed on time can lead to damage to the vehicle or its assemblies. It could also result in increased wear.

If you confirm maintenance work accidentally or before it has been performed, the maintenance system will calculate a new maintenance due date. To prevent damage to the vehicle and its assemblies, have the corresponding maintenance work carried out immediately.

Only confirm maintenance work if the maintenance work has actually been completed.

The maintenance system calculates maintenance due dates for the vehicle and its assemblies based on the vehicle's operating conditions. The event window automatically displays maintenance due dates 14 days in advance. When the maintenance due date has been reached or exceeded, the on-board computer

shows additional event windows (▷ page 89).

If the maintenance work is carried out at a Freightliner Service Center, the fact that the work has been carried out professionally will be confirmed in the on-board computer and the service report.

- ▶ Using the  or  button, scroll to  operation and maintenance.
- ▶ Using the  or  button, scroll to the **Maintenance** menu window.

- ▶ **To display the maintenance point and due date:** press the  button.

The input window shows:

- the maintenance point, e.g. **Engine**
- the maintenance due date, e.g. **23.09.2018**
- the remaining distance, e.g. **1250 miles**

If no prediction for the maintenance due date is possible, the input window shows:

- the maintenance point, e.g. **Engine**
- the maintenance due date, e.g. **---.---.----**
- the remaining distance, e.g. **---- miles**

- ▶ **To display the next maintenance point and due date:** use the  or  button to display the next maintenance point.

Depending on the vehicle's equipment, you can call up the following maintenance points:

- **Time-based maint.**
- **Brakes, axle 1/2/3**
- **Air filter**
- **Diesel particle filter**
- **Engine**
- **Rear axle**
- **Transmission**

- ▶ **To reset the maintenance due date:** press the  or  button to display the desired maintenance point.

- ▶ Press the  button.

If a reset is possible, the input window shows, for example, **Reset? No/Yes**.

- ▶ Use the  button to select the **Yes** menu bar and press the  or  button to confirm.

## Monitoring info menu

### Reservoir pressure menu window

- ▶ **To display the reservoir pressure:** use the  or  button to scroll to  monitoring info.

The menu window shows the reservoir pressure of brake circuits  and  as a bar display.

### Engine menu window

In the **Engine** menu window, you can check the engine oil level and display the engine's operating hours. Check the engine oil level before the start of every journey. The engine oil level is not displayed while driving.

- ▶ Park the vehicle on a level surface.
- ▶ Apply the parking brake.
- ▶ Switch off the engine.
- ▶ Turn the key to the drive position in the ignition lock.
- ▶ Wait at least five minutes after switching off the engine.

**i** If you call up the oil level too early or while the engine is running, **Not available** appears in the menu window.

- ▶ Use the  or  button to scroll to  monitoring info.

- ▶ **To display the engine oil level and operating hours:** use the  or  button to scroll to the **Engine** menu window.

The menu window shows:

- the  engine oil level, e.g. **Top up oil: 1 US gal**
- the  operating hours of the engine, e.g. **10000 h 27 min**

The service counter is not suitable for measuring the driving hours of the driver. Use equipment which is suitable for this purpose.

- ▶ If **Oil level low** or **Oil level too low** is displayed in the menu window, immediately top up the amount of oil displayed (**>** page 163) and call up the oil level again.

**i** If the oil level is too low, do not start the engine.

- ▶ If the oil level display is not available, repeat the oil level check.
- ▶ If it is not possible to display the oil level after repeated attempts, have the oil level display checked at a qualified specialist workshop.

### Coolant menu window

- ▶ Use the  or  button to scroll to  monitoring info.

- ▶ **To display the coolant temperature:** use the  or  button to scroll to the **Coolant** menu window.

**i** If the coolant level is too low, the coolant temperature cannot be displayed.

### Events menu window

You can display stored malfunctions and messages in the **Events** menu. If you have rectified the cause of the malfunction/message, the on-board computer no longer displays the event.

- ▶ Use the  or  button to scroll to  monitoring info.

- ▶ Use the  or  button to scroll to the **Events** menu window.

The menu window shows, for example, the number of events.

- ▶ **To display an event:** press .

- ▶ **To display further events:** use the  or  button to show the next event window.

### Diagnostics menu window

Diagnostics data contains information with which you can assist the workshop staff during fault diagnosis, e.g. via roadside assistance. The **Diagnosis** menu window contains, for example, a list of all control units (systems) installed in the vehicle. You can obtain further information from any Freightliner service center.

- ▶ Use the  or  button to scroll to  monitoring info.

- ▶ Use the  or  button to scroll to the **Diagnosis** menu window.

- ▶ **To display diagnostics data:** press . The input window shows a list of all control unit system abbreviations.

- ▶ Select the desired control unit using the  or  button.
- ▶ Display further details on the control unit by pressing the  button.

## Settings menu

### Menu window menu

If you change the settings in the **Menu** menu window, the changes affect the display of the menu window.

- ▶ Use the  or  button to scroll to  settings.
- ▶ **To set the units of measurement:** press the  button.  
The input window displays a list of possible settings:
  - clock mode in **24h** or **12h**
  - speed in **km/h** or **miles/h**
  - distance in **km** or **mi**
  - liquid units in **liter**, **UK gal** or **US gal**
  - temperature units in **°C** or **°F**
  - average fuel consumption in **l/100 km**, **km/l** or **mpg**
  - pressure units in **bar/kpa** or **psi**
  - weight units in **t**, **tn** or **l.tn**
- ▶ Select the desired menu bar with the  or  button.
- ▶ Change the setting with the  or  button.

### Lighting menu window

You can set the brightness of the instrument cluster, the switch and the audio display as well as the delayed switch-off of the surround lighting in the lighting menu window.

You can only adjust the brightness of the instrument cluster and the switches if night mode has been detected and the lighting is switched on. If the setting cannot be changed, the input window displays **Day mode**.

Surround lighting is switched on for the duration of the delayed switch-off time set if you:

- open a door in poor light conditions (vehicles with rain/light sensor)
- switch off the low-beam headlamps and the ignition and open a door within approx-

imately four minutes (vehicles without rain/light sensor)

- ▶ Use the  or  button to scroll to  settings.
- ▶ Use the  or  button to scroll to the **Lighting** menu window.
- ▶ **To adjust the instrument lighting/delayed switch-off:** press the  button.  
The input window shows the instrument lighting as a bar display and the exterior lighting delayed switch-off time that has been set.
- ▶ Use the  or  button to select **Instrument panel** or **Delay switch-off, ext. lighting**.
- ▶ Change the setting with the  or  button.  
If you set the delayed switch-off to **0 s**, the surround lighting is switched off.

### Language menu window

The languages available depend on the country in which the vehicle is sold. All text displays are shown in the set language. You can install more languages. Information on installing more languages can be obtained from any Freightliner Service Center.

- ▶ Use the  or  button to scroll to  settings.
- ▶ Use the  or  button to scroll to the **Language** menu window.
- ▶ **To set the language:** press the  button.  
The input window displays a selection of languages.
- ▶ Select the desired language with the  or  button.
- ▶ Change the setting with the  button.

### Service products menu window

#### General notes

 When you change the service product data via the on-board computer, the maintenance system adjusts the maintenance due dates accordingly.

Set the data for the service products added. Otherwise, the assemblies could be damaged.

Observe the information under "Service products" (▷ page 198).

### Engine fuel grade

**!** A high fuel sulfur content accelerates the aging process of the engine oil and can damage the engine and exhaust system.

The fuel sulfur content is set before the vehicle is delivered.

Observe the notes on diesel fuel and fuel grade in the "Diesel fuel" section

(▷ page 202).

### Engine oil grade

**!** If engine oils of different grades are mixed, the engine oil change intervals are shortened compared with engine oils of the same quality.

Therefore, only mix engine oils of different grades in exceptional circumstances. Set the sheet number of the engine oil of the lower grade under **Engine oil grade** in order to avoid damage to the engine.

Observe the information under "Engine oils" (▷ page 199).

Set the oil grade of the engine oil used according to the Sheet Numbers of the Mercedes-Benz Specifications for Service Products under **Engine Oil grade**.

**i** You can obtain information about service products that have been tested by Mercedes-Benz and approved for your vehicle on the Internet at: <http://bevo.mercedes-benz.com/>

### Engine oil viscosity

Set the viscosity classification (SAE class) of the engine oil used under **Engine Oil viscosity**.

### Transmission oil grade

Set the oil grade of the transmission oil used according to the Sheet Numbers of the Mercedes-Benz Specifications for Service Products under **Transmission Oil grade**.

### Rear axle oil grade

Set the oil grade of the transmission oil used according to the Sheet Numbers of the Mercedes-Benz Specifications for Service Products under **Rear axle Oil grade**.

### Setting the service products

- ▶ Use the  or  button to scroll to  settings.
- ▶ Use the  or  button to scroll to the **Service products** menu window.
- ▶ Press the **(OK)** button.  
The input window displays the assembly and the service product characteristic, for example **Engine Oil grade**, as well as the currently set value, e.g. **228.61**.
- ▶ **To select an assembly:** using the  or  button, select an assembly with a corresponding service product characteristic:
  - **Engine Fuel grade**
  - **Engine Oil viscosity**
  - **Engine Oil grade**
  - **Transmission Oil grade**
  - **Rear axle Oil grade**
- ▶ **To set the service product value:** using the  or  button, select a service product value.
- ▶ Set the service product value of the service product added using the  or  button.

## On-board computer event window

### Notes on events

Messages include operating information, error messages or warnings that the on-board computer automatically displays in an event window. In addition to the event window, an indicator lamp may light up in the instrument cluster or in the status area of the on-board computer.

Depending on the priority of the message, the on-board computer displays the event window in different colors:

- **gray event window for a malfunction/ notification of low priority**  
Observe the instructions in the event window. You can drive on.
- **yellow event window for a malfunction/ notification of medium priority**  
Observe the instructions in the event window. If it is possible to continue the journey despite the malfunction, drive on carefully. Have the affected system checked at a

qualified specialist workshop as soon as possible.

- **red event window for a malfunction of high priority**

Observe the instructions in the event window. Immediately stop the vehicle while paying attention to the traffic conditions and contact a qualified specialist workshop. If the qualified specialist workshop determines it is possible to continue driving, adapt your driving style accordingly. Drive with even greater care. Keep in mind that continuing the journey could damage the

vehicle and contravene legal regulations. Immediately drive to a qualified specialist workshop and have the affected system checked and repaired.

If you can confirm the event window using the  button, the event window is hidden. You can call up the event window again at a later point ([▷ page 80](#)). If in addition to the event window, an indicator lamp has lit up in the instrument cluster or in the status area of the on-board computer ([▷ page 73](#)), the indicator lamp remains on.

## Gray event window

### Notes

#### Important safety notes

If you ignore warning and indicator lamps and the event window, you will not be able to recognize failures and malfunctions in components or systems. Driving/braking characteristics may be affected and the operating and road safety of your vehicle may be limited. Have the affected system checked and repaired at a qualified specialist workshop. Always observe the warning lamps and event window and follow the corresponding measures.

#### Gray event window

With a malfunction/notification of low priority, the on-board computer displays a gray event window. If further information about the malfunction/notification is available, the event window displays the  symbol. You can display the information using the  button on the multifunction steering wheel. Observe the information and instructions in the event window. You can drive on.

### Exhaust gas aftertreatment

Display messages	Possible causes/consequences and ► Solutions
 Regeneration disabled	Regeneration of the diesel particle filter is disabled and the fill level of the diesel particle filter is raised. <ul style="list-style-type: none"> <li>► In order to enable automatic regeneration of the diesel particle filter, deactivate the regeneration block as soon as possible (<a href="#">▷ page 148</a>).</li> </ul>
 Manual regeneration not possible	Supplementary text  : Requirements for manual regeneration have not been fulfilled. Please observe Operating Instructions. <p>Regeneration of the diesel particle filter is not possible. One or more requirements have not been fulfilled.</p> <ul style="list-style-type: none"> <li>► Observe the activation conditions and requirements for manual regeneration of the diesel particle filter (<a href="#">▷ page 149</a>).</li> </ul>

## Transmission and clutch

Display messages	Possible causes/consequences and ► Solutions
 <p>Clutch under heavy strain</p>	<p>The clutch is under a heavy load but not overloaded. You should only pull away in first gear.</p> <ul style="list-style-type: none"> <li>► Keep the pulling away or maneuvering procedure as brief as possible.</li> </ul>

## Driving systems

Display messages	Possible causes/consequences and ► Solutions
 <p>Active Brake Assist cannot be activated</p>	<p>ABS may be switched off. There may be a fault in Active Brake Assist or a fault with the vehicle's brake system.</p> <p><b>▲ WARNING</b></p> <p>If Active Brake Assist cannot be activated, you will not receive any collision warnings. The vehicle will not brake automatically in critical situations.</p> <p>There is a risk of an accident if you do not adapt your driving style.</p> <ul style="list-style-type: none"> <li>► Pay particular attention to the traffic situation.</li> <li>► If necessary, use the service brake to brake the vehicle.</li> <li>► Have the Active Brake Assist system checked at a qualified specialist workshop.</li> </ul>
 <p>Emergency braking finished</p>	<p>Active Brake Assist has triggered an emergency braking maneuver (full brake application) and the emergency braking maneuver has been completed.</p> <ul style="list-style-type: none"> <li>► Remove the vehicle as quickly as possible from the danger zone, paying attention to road and traffic conditions as you do so.</li> <li>► Switch off the engine.</li> <li>► Apply the parking brake.</li> <li>► Make sure that the vehicle is in proper operating order and that the load is secured properly.</li> </ul>
 <p>Sideguard Assist inoperative</p>	<p>Example: supplementary text <b>Stop vehicle and clean sensor</b></p> <p>The sensor is dirty. Sideguard Assist is unavailable.</p> <p><b>▲ WARNING</b></p> <p>If Sideguard Assist is unavailable, you will not receive any warnings from Sideguard Assist.</p> <p>There is a risk of an accident.</p> <ul style="list-style-type: none"> <li>► Stop the vehicle, paying attention to road and traffic conditions, and clean the sensor.</li> </ul>

## Service products and maintenance

Display messages	Possible causes/consequences and ► Solutions
	<p>The washer fluid level in the washer fluid reservoir for the wind-screen washer/headlamp cleaning system has fallen to approximately 1 US qt (1 liter).</p> <p>► Refill the washer fluid reservoir (► page 162).</p>
 <p>Example: <b>Engine</b> <b>12.08.11</b> <b>1800 miles</b> (example)</p>	<p>A service is due soon.</p> <p>► Schedule a service appointment at a qualified specialist workshop.</p>
 <p>Example: <b>Engine Main-</b> <b>tenance due</b></p>	<p>In addition to the event window, the  indicator lamp lights up in gray in the status area of the on-board computer.</p> <p>A service is due.</p> <p>► Have maintenance work carried out at a qualified specialist workshop.</p>

## Yellow event window

### Notes

#### Important safety notes

If you ignore warning and indicator lamps and the event window, you will not be able to recognize failures and malfunctions in components or systems. Driving/braking characteristics may be affected and the operating and road safety of your vehicle may be limited. Have the affected system checked and repaired at a qualified specialist workshop. Always observe the warning lamps and event window and follow the corresponding measures.

#### Yellow event window

With a malfunction/notification of medium priority, the on-board computer displays a yellow event window. The on-board computer displays a yellow event window, e.g. if you have not performed the service work due. The on-board computer also displays a yellow event window for special operating conditions, e.g. if the diesel particle filter is saturated or if the clutch is under heavy load. If further information about the malfunction/notification is available, the event window displays the  symbol. You can display the information using the  button on the multifunction steering wheel. Observe the information and instructions in the event window.

## Exhaust gas aftertreatment

Display messages	Possible causes/consequences and ► Solutions
 DEF reserve	Supplementary text  : <b>Please top up DEF.</b> DEF level has sunk to approximately 10%. ► Refill the DEF tank as soon as possible (▷ page 152). Otherwise, engine output may be reduced.
 DEF reserve	Supplementary text  : <b>Please top up with DEF. Risk of reduction in engine power</b> Additionally, the on-board computer displays the  indicator lamp in the status area. The DEF level has sunk to approximately 7.5%. ► Refill the DEF tank as soon as possible (▷ page 152). Otherwise, engine output may be reduced and, also, the speed may be limited to approximately 12 mph (20 km/h).
 DEF very low	Supplementary text  : <b>Please top up with DEF. Reduction in engine power after stopping</b> Additionally, the on-board computer displays the  indicator lamp in the status area. The DEF level has sunk to approximately 5%. ► Refill the DEF tank as soon as possible (▷ page 152). Otherwise, engine output will be reduced the next time that the engine is started.
 DEF empty	Supplementary text  : <b>Please top up with DEF Risk of limit speed</b> Additionally, the on-board computer displays the  indicator lamp in the status area. The DEF level has sunk to approximately 2.5%. The engine power output is reduced. ► Adapt your driving style accordingly. ► Refill the DEF tank as soon as possible (▷ page 152). Otherwise, speed may be limited to approximately 12 mph (20 km/h).
 DEF empty	Supplementary text  : <b>Please top up DEF.</b> Additionally, the on-board computer displays the  indicator lamp in the status area. The DEF level has sunk to approximately 0%. The engine power output is reduced. ► Adapt your driving style accordingly. ► Refill the DEF tank as soon as possible (▷ page 152).

Display messages	Possible causes/consequences and ► Solutions
 <p>Engine power reduced</p>	<p>Supplementary text : Please top up with DEF Risk of limit speed</p> <p>Additionally, the on-board computer displays the  indicator lamp in the status area. The DEF level has sunk to approximately 2.5%. The engine power output is reduced.</p> <ul style="list-style-type: none"> <li>► Adapt your driving style accordingly.</li> <li>► Refill the DEF tank as soon as possible (▷ page 152). Otherwise, speed may be limited to approximately 12 mph (20 km/h).</li> </ul>
 <p>Limit speed</p>	<p>Supplementary text : Please top up DEF.</p> <p>Additionally, the on-board computer displays the  indicator lamp in the status area and the  indicator lamp lights up in the instrument cluster. The DEF level has sunk to approximately 0%. The speed is limited to approximately 12 mph (20 km/h).</p> <ul style="list-style-type: none"> <li>► Adapt your driving style accordingly.</li> <li>► Refill the DEF tank as soon as possible (▷ page 152).</li> </ul>
 <p>Diesel part. filter: fluid level increased</p>	<p>Supplementary text : Please start regeneration Please observe Operating Instructions</p> <p>The  indicator lamp also lights up yellow in the instrument cluster. The diesel particle filter is in need of regeneration.</p> <p>Depending on how the vehicle is being driven, within the next 4 hours:</p> <ul style="list-style-type: none"> <li>► Deactivate the regeneration block (▷ page 148) and drive on a motorway or for a longer distance until the  indicator lamp goes out.</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>► Start manual regeneration (▷ page 149).</li> </ul>

Display messages	Possible causes/consequences and ► Solutions
 <p>Diesel particle filter full</p>	<p>Supplementary text : Please start regeneration at once Press and hold regeneration switch for 3s while vehicle is stationary Please observe Operating Instructions</p> <p>The  indicator lamp also lights up yellow in the instrument cluster. The diesel particle filter is in need of regeneration.</p> <p>Depending on how the vehicle is being driven, within the next 30 minutes:</p> <ul style="list-style-type: none"> <li>► Deactivate the regeneration block (&gt; page 148) and drive on a motorway or for a longer distance until the  indicator lamp goes out.</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>► Immediately start manual regeneration (&gt; page 149). Otherwise, engine output may be reduced.</li> </ul>
 <p>Diesel particle filter full Engine power reduced</p>	<p>Supplementary text : Please start regeneration at once Press and hold regeneration switch for 3s while vehicle is stationary Please observe Operating Instructions</p> <p>The  indicator lamp also flashes yellow in the instrument cluster. The diesel particle filter is in immediate need of regeneration and this is the last possibility for it to be started manually.</p> <ul style="list-style-type: none"> <li>► Immediately start manual regeneration (&gt; page 149). Otherwise, the diesel particle filter can only be cleaned or exchanged at a qualified specialist workshop.</li> </ul>

## Service products and maintenance

Display messages	Possible causes/consequences and ► Solutions
	<p>The fuel has dropped to the reserve level.</p> <p>► Refill the fuel tank (► page 151).</p>
 Example: <b>Engine maintenance due immediately</b>	<p>The  indicator lamp lights up yellow in the status area of the on-board computer as well as in the event window.</p> <p>A service due date has been exceeded by a significant amount of time. This could result in damage to the vehicle and its assemblies. It could also result in increased wear.</p> <p>► Have maintenance work carried out immediately at a qualified specialist workshop.</p>
 Example: <b>Brakes, axle 1 Maintenance due immediately</b>	<p>The  indicator lamp lights up yellow in the status area of the on-board computer as well as in the event window.</p> <p>The service work due has not been performed.</p> <p>The wear limit of the brake pads/linings and/or brake discs has been exceeded.</p> <p> <b>WARNING</b></p> <p>The vehicle's driving and braking characteristics may change. There is a risk of an accident.</p> <p>► Have the brake pads/linings replaced immediately at a qualified specialist workshop.</p>

## Compressed-air system, engine and cooling system

Display messages	Possible causes/consequences and ► Solutions
	<p>The compressed-air dryer is malfunctioning.</p> <p>► Have the compressed-air dryer checked at a qualified specialist workshop.</p>
 <b>Transmission/clutch reserve pressure too low</b>	<p>The reservoir pressure in the transmission/clutch is too low.</p> <p> <b>WARNING</b></p> <p>The gears can no longer be changed properly. There is a risk of an accident.</p> <p>► Stop the vehicle at once, paying attention to road traffic conditions.</p> <p>► Apply the parking brake.</p> <p>► Let the engine run until the event window goes out and the reservoir pressure has reached an adequate level.</p> <p>► If the malfunction occurs regularly, have the compressed-air system checked at a qualified specialist workshop.</p>

Display messages	Possible causes/consequences and ► Solutions
 <p>Drive control faulty</p>	<p>Supplementary text : <a href="#">Visit workshop</a>. The electronic drive control is malfunctioning.</p> <p>► Observe the instructions in the event window.</p>
 <p>Engine faulty</p>	<p>One of the following systems is malfunctioning:</p> <ul style="list-style-type: none"> <li>• Engine</li> <li>• Engine cooling system</li> <li>• Engine management</li> <li>• Diesel injection system</li> </ul> <p>► Have the system checked at a qualified specialist workshop.</p>
 <p>Coolant temperature too high</p>	<p>The coolant temperature is too high. Engine power output is automatically reduced.</p> <ul style="list-style-type: none"> <li>► Reduce the speed.</li> <li>► Shift to a lower gear.</li> <li>► Remove objects that could block the air supply to the radiator, e.g. paper which has blown onto the grille.</li> </ul>

## Transmission

Display messages	Possible causes/consequences and ► Solutions
 <p><b>Transmission faulty</b> (only vehicles with automatic transmission)</p>	<p>Supplementary text : <a href="#">Visit workshop</a>.</p> <p> <b>WARNING</b></p> <p>The automatic transmission is malfunctioning. The journey can be continued, but with restrictions.</p> <p>Depending on the fault, a specialist workshop may be able to assist you in restricted continuation of your journey if you supply the fault code. You can view the fault codes either by using the <a href="#">Diagnosis</a> (&gt; page 80) menu window in the on-board computer or the touch-key gearshift of the automatic transmission.</p> <p>Displaying the fault codes via the touch-key gearshift:</p> <ul style="list-style-type: none"> <li>► Simultaneously press the  and  buttons on the touch-key gearshift twice. The touch-key gearshift display shows the 5-digit fault codes in sequence.</li> <li>► To display the next fault code, press the MODE button. A maximum of 5 fault codes can be stored.</li> <li>► To stop displaying fault codes, press the  and  buttons of the automatic transmission simultaneously.</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>► Shift the automatic transmission to the neutral position.</li> </ul>
 <p><b>Transmission: oil temperature too high</b></p>	<p>Supplementary text : <a href="#">Visit workshop</a></p> <p>The permissible operating temperature of the transmission or retarder has been reached. The temperature of the transmission oil or coolant is too high. The reason for this may be that the oil level in the transmission is too high or too low. If excessive oil temperature persists in the transmission, the transmission may be damaged.</p> <ul style="list-style-type: none"> <li>► Switch off the retarder.</li> <li>► Stop the vehicle as soon as possible, paying attention to traffic conditions.</li> <li>► Apply the parking brake and shift the automatic transmission to neutral.</li> <li>► Run the engine for 2 to 3 minutes at a speed between 1,200 and 1,500 rpm and then switch off the engine.</li> <li>► If the temperature of the fluid does not drop, check the automatic transmission fluid level (&gt; page 164).</li> <li>► If the event message does not go out, contact a qualified specialist workshop and have the malfunction rectified.</li> </ul>

## Braking and driving systems

Display messages	Possible causes/consequences and ► Solutions
 <p>ESP not available</p>	<p>Supplementary text : <a href="#">Visit workshop</a></p> <p>In addition, the  warning lamp lights up in the instrument cluster.</p> <p>Stability Control Assist is malfunctioning.</p> <p> <b>WARNING</b></p> <p>Driving/braking characteristics may change.</p> <p>There is a risk of an accident if you do not adapt your driving style.</p> <ul style="list-style-type: none"> <li>► Drive with even greater care.</li> <li>► Have Stability Control Assist checked at a qualified specialist workshop.</li> </ul>
 <p>ESP deactivated Set normal level</p>	<p>In addition, the  warning lamp lights up in the instrument cluster.</p> <p>If the chassis is not at driving level while driving, Stability Control Assist is deactivated.</p> <p> <b>WARNING</b></p> <p>Driving/braking characteristics may change.</p> <p>There is a risk of an accident if you do not adapt your driving style.</p> <ul style="list-style-type: none"> <li>► Set the driving level (&gt; page 142).</li> </ul>
 <p>Braking effect limited</p>	<p>Supplementary text : <a href="#">Adapt your driving style</a></p> <p>The temperature of one of the disc brakes on the tractor vehicle is too high.</p> <p> <b>WARNING</b></p> <p>The disc brake may overheat. Driving/braking characteristics may change.</p> <p>There is a risk of an accident.</p> <ul style="list-style-type: none"> <li>► Drive with even greater care.</li> <li>► Shift to a lower gear.</li> <li>► Brake the vehicle with the continuous brake.</li> <li>► Only depress the brake pedal if the continuous brake cannot decelerate the vehicle sufficiently.</li> </ul>

Display messages	Possible causes/consequences and ► Solutions
 <p>Driving and braking characteristics changed</p>	<p>Supplementary text : <a href="#">Visit workshop</a></p> <p>In addition, the  warning lamp lights up yellow in the instrument cluster.</p> <p>The vehicle's brake system is malfunctioning.</p> <p> <b>WARNING</b></p> <p>Driving and braking characteristics may change. There is a risk of an accident.</p> <ul style="list-style-type: none"> <li>► Drive with even greater care. Adapt your driving style to suit the changed driving and braking characteristics.</li> <li>► Have the brake system checked at a qualified specialist workshop.</li> </ul>
 <p>Set driving level</p>	<p>The chassis is not at driving level. The distance control assistant and Active Brake Assist are inoperative.</p> <ul style="list-style-type: none"> <li>► Set the driving level (&gt; page 142).</li> </ul>
 <p>Distance sensor dirty</p>	<p>Supplementary text : <a href="#">Stop vehicle and clean sensor. Active Brake Assist and distance control faulty</a></p> <p>The distance sensor is dirty. The distance control assistant and Active Brake Assist are inoperative.</p> <p> <b>WARNING</b></p> <p>If the distance control assistant and Active Brake Assist are inoperative, you will not receive any collision warnings. The vehicle will not brake automatically in critical situations.</p> <p>There is a risk of an accident.</p> <ul style="list-style-type: none"> <li>► Clean the distance sensor cover in the front bumper using water (&gt; page 157).</li> <li>Do not use any dry, rough or hard cloths and do not scrub or scratch.</li> </ul>
	<p>When giving an automatic collision warning, the on-board computer shows the yellow  event window and a double warning tone sounds.</p> <p> <b>WARNING</b></p> <p>The distance control assistant warns you if there is a risk of crashing.</p> <p>There is a risk of an accident.</p> <ul style="list-style-type: none"> <li>► Pay particular attention to the traffic situation.</li> <li>► Slow down the vehicle using the service brake.</li> </ul>

Display messages	Possible causes/consequences and ► Solutions
 <p>Active Brake Assist not available</p>	<p>Example: supplementary text : <a href="#">Please have rectified at next maintenance</a></p> <p>Active Brake Assist is not available.</p> <p> <b>WARNING</b></p> <p>If Active Brake Assist is not available, you will not receive any collision warnings. In critical situations, the vehicle will not brake automatically.</p> <p>There is a risk of an accident if you do not adapt your driving style.</p> <ul style="list-style-type: none"> <li>► If necessary, use the service brake to brake the vehicle.</li> <li>► Have the Active Brake Assist system checked at a qualified specialist workshop.</li> </ul>
 <p>Camera's optical field of vision, dirty</p>	<p>Supplementary text : <a href="#">Stop vehicle and clean the windshield Lane Keeping Assist and ATTENTION ASSIST unavailable</a></p> <p> <b>WARNING</b></p> <p>If Lane Keeping Assist is unavailable, you will not receive any warnings from Lane Keeping Assist.</p> <p>There is a risk of an accident.</p> <ul style="list-style-type: none"> <li>► Clean the area of the windshield where the camera is located (► page 157).</li> </ul>
 <p>Lane Keeping Assist not available</p>	<p>Supplementary text : <a href="#">Visit workshop Camera calibration faulty Lane Keeping Assist not available</a></p> <p> <b>WARNING</b></p> <p>If Lane Keeping Assist is unavailable, you will not receive any warnings from Lane Keeping Assist.</p> <p>There is a risk of an accident.</p> <ul style="list-style-type: none"> <li>► Have Lane Keeping Assist checked at a qualified specialist workshop.</li> </ul>
 <p>Lane Keeping Assist not available</p>	<p>Supplementary text : <a href="#">Visit workshop Lane Keeping Assist not available</a></p> <p>Lane Keeping Assist is malfunctioning.</p> <p> <b>WARNING</b></p> <p>If Lane Keeping Assist is unavailable, you will not receive any warnings from Lane Keeping Assist.</p> <p>There is a risk of an accident.</p> <ul style="list-style-type: none"> <li>► Have Lane Keeping Assist checked at a qualified specialist workshop.</li> </ul>

Display messages	Possible causes/consequences and ► Solutions
 <p>Lane Keeping Assist faulty</p>	<p>Supplementary text : <a href="#">Visit workshop Lane Keeping Assist not available</a></p> <p>Lane Keeping Assist is malfunctioning.</p> <p> <b>WARNING</b></p> <p>If Lane Keeping Assist is unavailable, you will not receive any warnings from Lane Keeping Assist.</p> <p>There is a risk of an accident.</p> <p>► Have Lane Keeping Assist checked at a qualified specialist workshop.</p>
 <p>Sideguard Assist faulty</p>	<p>Sideguard Assist is malfunctioning.</p> <p> <b>WARNING</b></p> <p>If Sideguard Assist is unavailable, you will not receive any warnings from Sideguard Assist.</p> <p>There is a risk of an accident.</p> <p>► Have Sideguard Assist checked at a qualified specialist workshop.</p>
 <p>Lane Keeping Assist faulty</p>	<p>Supplementary text : <a href="#">Visit workshop left speaker Lane Keeping Assist faulty</a> or <a href="#">Visit workshop, right speaker Lane Keeping Assist faulty</a></p> <p> <b>WARNING</b></p> <p>The left or right loudspeaker is malfunctioning. You will not receive any warnings from Lane Keeping Assist on the left or right sides.</p> <p>There is a risk of an accident.</p> <p>► Have Lane Keeping Assist checked at a qualified specialist workshop.</p>

## Lighting system and electrical system

Display messages	Possible causes/consequences and ► Solutions
 <p>Undervoltage</p>	<p>Supplementary text : <a href="#">Start engine or stop vehicle Consult service center Driving characteristics changed</a></p> <p>The battery charge level is too low.</p> <p> <b>WARNING</b></p> <p>The vehicle's driving and braking characteristics may change. There is a risk of an accident.</p> <p>When the on-board computer shows the event window with the engine switched off, the battery charge level is too low.</p> <ul style="list-style-type: none"> <li>► Start the engine.</li> </ul> <p>or</p> <ul style="list-style-type: none"> <li>► Charge the batteries (► page 168).</li> </ul> <p>When the on-board computer shows the event window with the engine running, the battery is no longer being charged.</p> <ul style="list-style-type: none"> <li>► Stop the vehicle at once, paying attention to road traffic conditions.</li> <li>► Consult a qualified specialist workshop.</li> </ul>
 <p>Generator is not charging battery.</p>	<p>Supplementary text : <a href="#">Visit workshop.</a></p> <p>The  indicator lamp lights up yellow in the status area of the on-board computer as well as in the event window. The alternator is faulty or the poly-V-belt has torn.</p> <p> <b>WARNING</b></p> <p>The vehicle's driving and braking characteristics may change. There is a risk of an accident.</p> <ul style="list-style-type: none"> <li>► Stop the vehicle at once, paying attention to road traffic conditions.</li> <li>► Consult a qualified specialist workshop.</li> </ul>
 <p>Instrument cluster display and controls faulty</p>	<p>The CAN connection to the instrument cluster is interrupted. The display of the on-board computer can no longer show important information about the operating and road safety of the vehicle.</p> <ul style="list-style-type: none"> <li>► Drive with even greater care.</li> <li>► Have the instrument cluster checked at a qualified specialist workshop.</li> </ul>
 <p>Incorrect key</p>	<p>You have inserted the wrong key into the ignition lock.</p> <ul style="list-style-type: none"> <li>► Use the correct key.</li> </ul>
 <p>Key invalid</p>	<p>Supplementary text : <a href="#">Please consult service center and have the key replaced.</a></p> <p>The key is malfunctioning or faulty. The key must be replaced.</p> <ul style="list-style-type: none"> <li>► Consult a qualified specialist workshop.</li> </ul>

## Red event window

### Notes

#### Important safety notes

If you ignore warning and indicator lamps and the event window, you will not be able to recognize failures and malfunctions in components or systems. Driving/braking characteristics may be affected and the operating and road safety of your vehicle may be limited. Have the affected system checked and repaired at a qualified specialist workshop. Always observe the warning lamps and event window and follow the corresponding measures.

#### Red event window

For a malfunction of high priority, the on-board computer shows a red event window. The on-board computer shows a red event window, e.g. for low brake reservoir pressure. Immediately stop the vehicle while paying attention to the traffic conditions and contact a qualified specialist workshop. If further information about the malfunction is available, the event window displays the  symbol. You can display the information using the  button on the multifunction steering wheel. Observe the information and instructions in the event window.

#### Exhaust gas aftertreatment

Display messages	Possible causes/consequences and ► Solutions
 Diesel particle filter full	Supplementary text  : Stop vehicle. Consult service center. Regeneration is no longer possible. The  indicator lamp also lights up red in the instrument cluster. The diesel particle filter has reached its soot saturation limit. Engine performance is reduced and manual regeneration is no longer possible. ► Clean the diesel particle filter as soon as possible or have it replaced.

## Compressed-air system

Display messages	Possible causes/consequences and ► Solutions
<p></p> <p>Example: Brake supply pressure in circuit 1 too low</p>	<p>In addition, the  warning lamp lights up red in the instrument cluster.</p> <p>The reservoir pressure in brake circuit 1  or 2  is too low.</p> <p>The reservoir pressure in the spring actuator and the trailer's brake circuit is too low. In this case, the  symbol is displayed in the event window.</p> <p>Possible causes:</p> <ul style="list-style-type: none"> <li>• Too much compressed air has been consumed</li> <li>• There is a leak in the compressed-air system.</li> </ul> <p> <b>WARNING</b></p> <p>The operating and road safety of the vehicle are jeopardized. There is a risk of an accident.</p> <ul style="list-style-type: none"> <li>► Stop the vehicle at once, paying attention to road traffic conditions.</li> <li>► Apply the parking brake.</li> <li>► Start the engine. The compressed-air system is charged.</li> </ul> <p>If the  warning lamp in the instrument cluster goes out:</p> <ul style="list-style-type: none"> <li>► Continue the journey.</li> </ul> <p>If the  warning lamp in the instrument cluster does not go out:</p> <ul style="list-style-type: none"> <li>► Check the compressed-air brake system for leaks (► page 109).</li> <li>► If the compressed-air brake system is not leaking, but the  warning lamp does not go out: have the compressed-air brake system checked at a qualified specialist workshop.</li> </ul>

## Engine and cooling

Display messages	Possible causes/consequences and ► Solutions
 <p>Engine oil pressure too low</p>	<p>Supplementary text : <b>Stop vehicle. Switch off engine.</b></p> <p>The  indicator lamp lights up red in the status area of the on-board computer as well as in the event window. The engine oil pressure is too low.</p> <p>The operating safety of the engine is jeopardized.</p> <ul style="list-style-type: none"> <li>► Stop the vehicle at once, paying attention to road traffic conditions.</li> <li>► Switch off the engine.</li> <li>► Apply the parking brake.</li> <li>► Check the engine oil level (► page 80) and top up oil (► page 163).</li> <li>► Consult a qualified specialist workshop.</li> </ul>
 <p>Coolant level too low</p>	<p>Supplementary text : <b>Top up coolant.</b></p> <p>The  indicator lamp lights up in the status area of the on-board computer as well as in the event window. As long as the  indicator lamp is lit, the coolant temperature cannot be displayed.</p> <p>The coolant level has dropped to approximately 1 US qt 1 liter below the minimum filling level. The operating safety of the engine is jeopardized.</p> <ul style="list-style-type: none"> <li>► Stop the vehicle at once, paying attention to road traffic conditions.</li> <li>► Switch off the engine.</li> <li>► Apply the parking brake.</li> <li>► Refill coolant (► page 161).</li> <li>► Have the engine cooling system checked for leaks at a qualified specialist workshop.</li> </ul>

## Braking and driving systems

Display messages	Possible causes/consequences and ► Solutions
	<p> <b>WARNING</b></p> <p>Active Brake Assist warns you of a risk of colliding with the vehicle in front.</p> <p>There is a risk of an accident.</p> <p>When an automatic collision warning is being given, you must brake the vehicle using the service brake if:</p> <ul style="list-style-type: none"> <li>• The on-board computer displays the  warning in a red event window</li> <li>• An intermittent warning tone sounds.</li> </ul> <p>► Pay particular attention to the traffic situation.</p> <p>► Slow down the vehicle using the service brake.</p>
 <p>Increased brake force and pedal travel</p>	<p>Supplementary text : <b>Stop vehicle. Contact service center.</b></p> <p>In addition, the  warning lamp lights up red in the instrument cluster.</p> <p>Full braking power may not be available.</p> <p> <b>WARNING</b></p> <p>Driving and braking characteristics are affected. The operating and road safety of the vehicle are jeopardized.</p> <p>There is a risk of an accident.</p> <ul style="list-style-type: none"> <li>► Carefully bring the vehicle to a standstill and park it safely.</li> <li>► Apply the parking brake.</li> <li>► Consult a qualified specialist workshop.</li> </ul>

## Indicator lamps in the status area of the display

## Important safety notes

If you ignore warning and indicator lamps, you will not be able to recognize failures and malfunctions in components or systems. Driving/braking characteristics may be affected and the operating and road safety of your vehicle may be limited. Have the affected system checked and repaired at a qualified specialist workshop. Always observe the warning and indicator lamps and follow the corresponding measures.

## Overview



Example: warning and indicator lamps in the on-board computer

If there is a fault, warning or operating information, a warning lamp or indicator lamp lights up in status area ① of the on-board computer. The warning lamp/indicator lamp lights up in a different color, depending on the priority of the fault, warning or the operating information. The warning lamp/indicator lamp may also light up in addition to an event window.

	Warning and indicator lamps
	Emissions-relevant malfunction of the DEF exhaust gas aftertreatment or DEF level low (▷ page 70)
	Engine oil pressure too low; see the corresponding event window
	Engine oil level too low
	Battery charge level; see the corresponding event window
	Power supply malfunction (▷ page 96)
	Maintenance due date; see the corresponding event window
	Continuous brake malfunction (▷ page 113)
	Frequent-stop brake (▷ page 111)

	Warning and indicator lamps
	ABS equipment ( supplemented by , for towing vehicle)
	Brakepad wear (▷ page 89)

## Useful information

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific deviations are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops: (> page 22).

## Driving

### Preparing for a journey

#### Visual and function check on the vehicle exterior



Before driving off, the following checks should be made on the vehicle:

- ▶ **Lighting system:** apply the parking brake.
- ▶ Insert the key into the ignition lock.
- ▶ Press the  switch. The indicator lamp in the  switch lights up and the lamp check is active. The parking lamps, perimeter lamps, identification lamps, side marker lamps, license plate lamps and rear lamps light up and remain lit. The low beam headlamps, high beam headlamps, turn signal lamps, reversing lamps, brake lights, and work lamps are switched on and off successively. This cycle is repeated 30 times.
- ▶ Press the  switch again.

or

- ▶ Release the parking brake. The indicator lamp in the  switch goes out and the lamp check is finished.
- ▶ Replace faulty bulbs (> page 51).
- ▶ Make sure that the license plate, vehicle lighting, turn signal and brake lamps are not dirty or damaged.
- ▶ **Contour markings:** check the condition of the contour markings at all attachments and bodies.
- ▶ **Wheels and tires:** check the tire pressures and that the tires and wheels are secure and in good condition.
- ▶ Check the tires for sufficient tread depth. When doing so, observe the country-specific regulations regarding minimum tire tread depth.
- ▶ Check the tires and wheels for visible damage and tears.
- ▶ **Loading and stowing:** make sure that the vehicle is loaded correctly.
- ▶ Make sure that the side gates and exterior flaps are locked securely and not damaged.
- ▶ **Snow and ice:** in wintry conditions, remove accumulations of snow and ice from the vehicle (> page 153).

Have all faults and damage rectified. If necessary, have the causes determined and rectified at a qualified specialist workshop.

#### Visual and function check in the vehicle

##### General notes

Please note that all electronic systems in the vehicle only serve to assist you. They do not relieve you of the obligation to carry out a visual inspection of the vehicle before starting a journey.

##### Activating driving systems

Before driving on public roads:

- ▶ Activate Stability Control Assist (> page 117).
- ▶ Set the driving level (> page 142).

## Checking the emergency equipment/first-aid kit

You will find an overview of emergency equipment and first-aid kits in the "Breakdown assistance" section (▷ page 171).

- ▶ Check the emergency equipment to make sure that it is accessible, complete and ready for use, for example:
  - Reflective safety vest
  - Warning triangle
  - Warning beacon
  - First-aid kit
  - Fire extinguisher
- ▶ At regular intervals, check that the first-aid kit is usable. Note the use-by dates of the contents.
- ▶ Have the fire extinguisher checked every one to two years.
- ▶ The fire extinguisher must be refilled after each use.

In some countries, it is a legal requirement to carry additional emergency equipment on board, e.g. a breathalyser. Observe the legal requirements regarding emergency equipment for the country you are currently in. Supplement your emergency equipment accordingly.

## Checking the fuel/DEF level

- ▶ Check the fuel/DEF level on the fuel display (▷ page 69) and on the DEF display (▷ page 69).
- ▶ When required refill fuel (▷ page 151) and DEF (▷ page 152).

## Checking the engine oil level

Check the engine oil level before the start of every journey (▷ page 80). The engine oil level is not displayed while driving.

### Ignition lock

#### WARNING

If you switch off the ignition while driving, safety-relevant functions are only available with limitations, or not at all. This can affect the power steering and the brake boosting effect, for example. You will require considerably more effort to steer and brake. There is a risk of an accident.

Do not switch off the ignition while driving.

#### WARNING

If you attach heavy or large objects to the SmartKey, the SmartKey could be unintentionally turned in the ignition lock. This could cause the engine to be switched off. There is a risk of an accident.

Do not attach any heavy or large objects to the SmartKey. Remove any bulky key rings before inserting the SmartKey into the ignition lock.

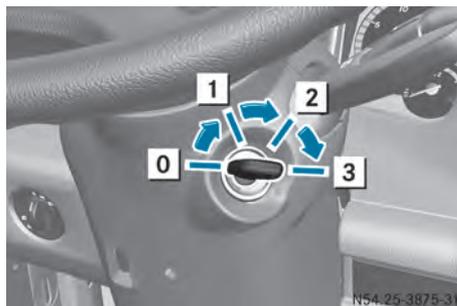
#### WARNING

If you leave children unsupervised in the vehicle, they could set it in motion, for example by:

- releasing the parking brake
- shifting the transmission to the neutral position
- starting the engine

In addition, they may operate vehicle equipment and become trapped. There is a risk of an accident and injury.

When leaving the vehicle, always take the SmartKey with you and lock the vehicle. Never leave children unsupervised in the vehicle.



- 0** To insert/remove the vehicle key
- 1** Steering wheel unlocked/radio position
- 2** Drive position
- 3** Start position

When you remove the key in position **0**, the steering is locked.

## Before driving off

### Important safety notes

#### WARNING

If objects, luggage or loads are not secured or not secured sufficiently, they could slip, tip over or be flung around and thereby hit vehicle occupants. There is a risk of injury, particularly in the event of sudden braking or a sudden change in direction.

Always store objects so that they cannot be flung around. Secure objects, luggage or loads against slipping or tipping before the journey.

#### WARNING

Objects in the driver's footwell may restrict the clearance around the pedals or block a depressed pedal. This jeopardizes the operating and road safety of the vehicle. There is a risk of an accident.

Stow all objects securely in the vehicle so that they do not get into the driver's footwell. When using floor mats or carpets, make sure that they are properly secured so that they do not slip or obstruct the pedals. Do not place several floor mats or carpets on top of one another.

#### WARNING

If you distribute the load unevenly in the vehicle, the handling as well as the steering and braking characteristics are severely affected. There is a risk of an accident.

Distribute the load evenly in the vehicle. Secure the load to prevent it from slipping.

The vehicle's driving, braking and steering characteristics vary with the type, weight and center of gravity of the load.

- ▶ Close all doors.
- ▶ Make sure that the floor mats and carpets are properly secured so that they cannot slip and obstruct the pedals.

## Starting the engine

### DANGER

Combustion engines emit poisonous exhaust gases such as carbon monoxide. Breathing in these exhaust gases is hazardous to health and results in poisoning. There is a risk of fatal injuries. Never leave the engine and, if equipped, the auxiliary heating running in an enclosed space without sufficient ventilation.

- ❗ When the engine oil pressure is too low, the on-board computer displays the  symbol in the red event window. An acoustic warning also sounds.

The operating safety of the engine is jeopardized. Switch off the engine immediately.

Observe the information and instructions on this event window in the "On-board computer and displays" section (▷ page 99).

- ▶ Depress the brake pedal or apply the parking brake.
- ▶ Turn the key to the drive position in the ignition lock.
  - The display check for the instrument cluster starts. The display check in the instrument cluster allows you to see what equipment is present and whether there are any faults with their functions.
  - The immobilizer is deactivated and the engine can be started. If you use an invalid key, the on-board computer will show an event window. Use a valid spare key.
- ▶ Check the engine oil level (▷ page 80).
- ▶ Shift into neutral.
- ▶ Deactivate the loading tailgate; see the separate Operating Instructions.
- ▶ Vehicles with engine preheating: at outside temperatures below -4 °F (-20 °C) preheat the engine before starting (▷ page 63).
- ▶ Turn the key to the start position in the ignition lock. Do not depress the accelerator pedal whilst doing so.
- ▶ If the engine starts normally, release the key.
  - The idling speed is controlled automatically.

- i** The engine idling speed is raised at very low outside temperatures or during regeneration of the diesel particle filter.

**i** The starting procedure is automatically canceled after approximately 60 seconds.

- ▶ If the engine fails to start: rectify the cause of the poor starting characteristics.

Possible causes of poor starting characteristics are, for example:

- a blocked fuel filter
- an empty fuel tank (▷ page 151)
- fuel system not bled (▷ page 176)
- ▶ Repeat the starting procedure.
- ▶ If the engine still fails to start, contact a qualified specialist workshop.

## Safety inspection

### Checking the reservoir pressure in the compressed-air brake system

#### WARNING

It is not possible to brake the vehicle if the compressed-air brake system has a leak or if there is insufficient reservoir pressure. There is a risk of an accident.

Do not pull away until the required reservoir pressures have been reached.

In the event of loss of pressure while driving, immediately bring the vehicle to a halt in accordance with the traffic conditions.

Secure the vehicle using the parking brake. Have the compressed-air system repaired at a qualified specialist workshop.

- ▶ Start the engine.
- ▶ Leave the engine running until the  warning lamp in the instrument cluster goes out.
- ▶ Call up the **Reserve pressure** menu window (▷ page 80) and check the current reservoir pressure.

Observe the event window in the on-board computer and the indicator lamps in the status area of the on-board computer/instrument cluster for the reservoir pressure and the compressed-air brake system.

### Checking the reservoir pressure in the transmission/clutch circuit

#### WARNING

If there is a loss of pressure or insufficient reservoir pressure in the transmission/clutch circuit, you can no longer shift gears. There is a risk of an accident.

Do not pull away, or stop the vehicle as soon as possible, paying attention to road and traffic conditions. Secure the vehicle against rolling away, e.g. with the parking brake. Have the compressed-air system repaired at a qualified specialist workshop.

The reservoir pressure in the transmission/clutch circuit is supplied once brake circuits 1 and 2 have been charged.

If the reservoir pressure in the transmission/clutch circuit is too low, the on-board computer will display the yellow  **Transmission/clutch reserve pressure too low** event window.

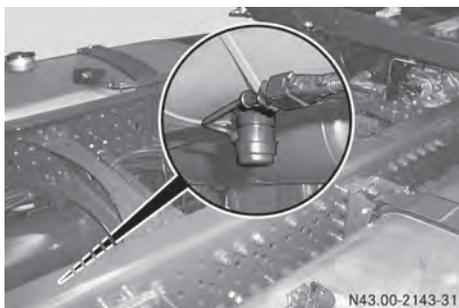
- ▶ Start the engine.
- ▶ Leave the engine running until the yellow  **Transmission/clutch reserve pressure too low** event window in the on-board computer goes out.

### Checking the function of the compressed-air dryer

#### WARNING

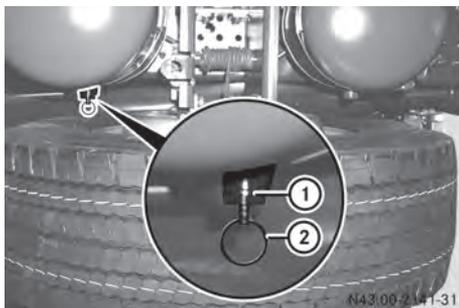
If the condensation level in the compressed-air reservoir is too high, the braking effect could be reduced or the compressed-air brake system could fail. There is a risk of an accident.

Before starting a journey check the compressed-air system for condensation. If the condensation level is high, have the compressed-air brake system checked as soon as possible at a qualified specialist workshop.



Example: condensation sensor on the compressed-air reservoir (compressed-air reservoir on the chassis, inner side)

Vehicles with a condensation sensor: if the condensation level in the compressed-air reservoir is too high, this is displayed by the yellow **Condensation in compressed-air reservoir** event window. In this case, have the compressed-air brake system checked at a qualified specialist workshop. If your vehicle is equipped with a condensation sensor, the following check is not applicable.



Example: condensed water valve on the compressed-air reservoir (compressed-air reservoir on the chassis, inner side)

Vehicles without a condensation sensor are equipped with condensation valve ① on the compressed-air reservoir.

- ▶ Start the engine.
- ▶ Check the reservoir pressure in the compressed-air brake system.
- ▶ If the on-board computer displays the red **Brake supply pressure in circuit 1 too low** and/or **Brake supply pressure in circuit 2 too low** event window, leave the engine running until the red event window goes out.  
The compressed-air system is charged.

- ▶ Switch off the engine.
- ▶ Pull ring ② on condensation valve ① and drain off the condensation.
- ▶ If a large amount of condensation runs out, have the compressed-air brake system checked at a qualified specialist workshop.

### Checking the vehicle height

#### WARNING

When you drive with the chassis lowered or raised, the vehicle's braking and driving characteristics can be significantly impaired. You could also exceed the permissible vehicle height if the chassis is raised. There is a risk of an accident.

Adjust the vehicle level before pulling away.

- ▶ Vehicles with level control: set the driving level (▶ page 142).  
The  indicator lamp in the instrument cluster goes out.

### Pulling away

- ❗ Do not pull away during the first engine rotations. After starting the engine, allow it to run in idle for a short time, until sufficient oil pressure has been attained. Do not run the cold engine at high engine speeds.  
In this way, you will avoid increased wear and possible engine damage.

You should pay special attention to road conditions when temperatures are around the freezing point.

There is a delay in displaying a change in outside temperature.

If the brake system is defective, braking behaviour may change or the brake system may fail. If you notice a reduction in braking power when testing the brakes, stop the vehicle as soon as possible while paying attention to traffic conditions. Have the brake system checked and repaired at a qualified specialist workshop.

If you ignore warning lamps and messages in the display, you will not recognise failures and faults affecting the brake system components and systems. Braking behaviour may change. The pedal travel and pedal force required to brake the vehicle may increase. Have the

brake system checked and repaired immediately at a qualified specialist workshop. Always pay attention to the warning lamps and messages in the display.

When the vehicle is stationary and the transmission is in neutral, the engine has delayed throttle response.

- ▶ Select a shift range (▷ page 114).
- ▶ Release the brake pedal or parking brake and slowly depress the accelerator pedal.
- ▶ When starting a journey, carry out a brake test. Observe the road and traffic conditions when doing so.

Warm up the engine quickly by driving at moderate engine speeds. After approximately 10 to 20 minutes, the engine will reach its operating temperature of between approximately 185 to 212 °F (85 to 100 °C), depending on the outside temperature.

You can utilize the full engine power output once the engine has reached normal operating temperature.

### Automatic engine shutoff

#### Important safety notes

The vehicle is equipped with engine protection which reduces engine output or switches the engine off if a critical operating status is reached.

In this way, damage to the vehicle engine can be prevented.

Critical operating statuses include:

- Coolant temperature is too high
- Coolant level is too low
- Oil temperature is too high
- Oil pressure is too low
- Malfunction identified in the emissions control system

#### WARNING

If the engine is switched off while the vehicle is in motion, safety-relevant functions are restricted or not available. This can affect the power steering, for example. To steer, you will require considerably more force. There is a risk of an accident.

Pay attention to the event messages in the on-board computer.

Carefully, bring the vehicle to a halt and park, paying attention to traffic conditions.

Notify a qualified specialist workshop.

If the on-board computer event message shows  **CHECK** or  **STOP**, then a critical operating status has been identified. The  indicator lamp in the instrument cluster also lights up.

The engine output is reduced automatically. If the malfunction persists then engine shutoff is initiated automatically.

- ▶ Pull over as soon as it is safe to do so. Pay attention to the countdown event message on the on-board computer when doing so.
- ▶ Notify a qualified specialist workshop.

#### **If the engine is switched off before the vehicle has been parked safely:**

- ▶ Switch off the ignition for five seconds.
- ▶ Start the engine again.
- ▶ Park the vehicle, paying attention to road and traffic conditions.
- ▶ Notify a qualified specialist workshop.

#### Overriding automatic engine shutoff



Shutdown/Override switch

If the vehicle cannot be parked safely within the time indicated on the on-board computer, automatic engine shutoff can be prevented using the Shutdown/Override switch.

- ▶ Press the upper section of the switch. The countdown to automatic engine shutoff shown on the on-board computer is reset.
- ▶ Repeat the process until the vehicle has been parked safely.
- ▶ Notify a qualified specialist workshop.

### Stopping and switching off the engine

#### WARNING

Flammable material such as leaves, grass or twigs may ignite if they come into contact with hot parts of the exhaust system or exhaust gas flow. There is a risk of fire.

Park the vehicle so that no flammable materials come into contact with parts of the vehicle which are hot. Take particular care not to park on dry grassland or harvested grain fields.

#### WARNING

The parking brake may not be sufficient to ensure that the loaded vehicles does not roll away on uphill and downhill gradients. There is a risk of an accident.

In the check position, check whether the parking brake will hold the loaded vehicle. If the vehicle is not held, secure it using other methods, e.g. wheel chocks.

#### WARNING

If you switch off the ignition while driving, safety-relevant functions are only available with limitations, or not at all. This can affect the power steering and the brake boosting effect, for example. You will require considerably more effort to steer and brake. There is a risk of an accident.

Do not switch off the ignition while driving.

#### WARNING

If you leave children unsupervised in the vehicle, they could set it in motion, for example by:

- releasing the parking brake
- shifting the transmission to the neutral position
- starting the engine

In addition, they may operate vehicle equipment and become trapped. There is a risk of an accident and injury.

When leaving the vehicle, always take the SmartKey with you and lock the vehicle. Never leave children unsupervised in the vehicle.

Ensure that you observe the safety notes in the "Children in the vehicle" section ([▷ page 37](#)).

- ▶ Stop the vehicle.
- ▶ Apply the parking brake.
- ▶ Shift into neutral.

Let the engine idle for approximately two minutes before switching it off, if:

- the vehicle has been driven for a prolonged period in retarder mode
  - the coolant temperature is above approximately 212 °F (100 °C)
  - full engine power has been used, e.g. while driving in mountainous terrain or during combined operation
- ▶ **To switch off the engine:** turn the key back all the way in the ignition lock.
  - ▶ Safeguard the vehicle against rolling away; use chocks if necessary.

## Brakes

### Brake system

If the brake system is defective, braking behaviour may change or the brake system may fail. If you notice a reduction in braking power when testing the brakes, stop the vehicle as soon as possible while paying attention to traffic conditions. Have the brake system checked and repaired by a qualified specialist workshop.

Always pay attention to the information in the yellow (▷ page 92) or red (▷ page 100) event windows, which are shown by the on-board computer if the brake system is malfunctioning. In addition, an indicator lamp lights up in the instrument cluster or the status area of the on-board computer and a warning tone may sound. Braking behaviour may change. The pedal travel and pedal force required to brake the vehicle may increase. Have the brake system checked and repaired by a qualified specialist workshop.

The vehicle is equipped with the electronic braking system (EBS) when it leaves the factory and includes the following functions:

- ABS (Anti-lock Braking System)
- ASR (acceleration skid control)
- ALB (automatic load-dependent brake)
- Hill holder
- BAS (Brake Assist System)

The electronic control is able to relieve the load on the service brake by activating the continuous brake, depending on the vehicle load and the weather conditions.

On vehicles with disc brakes on all axles, the electronic control system monitors the temperature of the disc brakes.

If the electronic control detects malfunctions, a corresponding event window appears in the on-board computer.

If you brake hard (emergency braking) from a speed greater than approximately 30 mph (50 km/h) the hazard warning lamps are switched on automatically. The hazard warning lamps flash at a higher frequency.

The hazard warning lamps are switched off automatically if:

- emergency braking is interrupted or
- the vehicle comes to a standstill after the emergency braking and then pulls away again

**i** If the vehicle comes to a standstill after emergency braking, the hazard warning lamps continue to flash at the normal frequency.

## Checking the compressed-air system for leaks

### WARNING

It is not possible to brake the vehicle if the compressed-air brake system has a leak or if there is insufficient reservoir pressure.

There is a risk of an accident.

Do not pull away until the required reservoir pressures have been reached.

In the event of loss of pressure while driving, immediately bring the vehicle to a halt in accordance with the traffic conditions.

Secure the vehicle using the parking brake. Have the compressed-air system repaired at a qualified specialist workshop.

Do not let anyone enter or exit the vehicle during the test. This avoids you mistaking pressure loss from the air-sprung seats or the level control system for a leak.

- ▶ Stop the vehicle on a level surface.
- ▶ Apply the parking brake.
- ▶ Use chocks to safeguard the vehicle against rolling away.
- ▶ Release the parking brake.
- ▶ Turn the key to the drive position in the ignition lock.
- ▶ Call up the **Reserve pressure** menu window in the on-board computer in the  Monitoring info menu (▷ page 80).
- ▶ Leave the engine running until the system-dependent reservoir pressure is shown (▷ page 205).
- ▶ Switch off the engine.
- ▶ Turn the key to the drive position in the ignition lock.
- ▶ Call up the **Reserve pressure** menu window in the on-board computer again. If a clear pressure loss cannot be identified in the menu window of the on-board computer, then the compressed air-brake system is free from leaks.
 

If a significant loss of pressure is detected, the compressed-air brake system is leaking.
- ▶ If the compressed-air brake system is leaking, have it checked and repaired by a qualified specialist workshop.

## ABS (Anti-lock Braking System)

### General notes

ABS controls the braking pressure so that the wheels do not lock under braking. This means that the vehicle can still be steered while braking.

ABS is operational from walking pace, regardless of road surface conditions. If the road is slippery, ABS intervenes even if you only brake gently.

### ABS display check

#### WARNING

If ABS is malfunctioning, the wheels could lock when braking. The steerability and braking characteristics would be severely affected. There is an increased danger of skidding and accidents.

Drive on carefully. Have ABS checked immediately at a qualified specialist workshop.

The anti-lock protection function is not guaranteed if, after the ignition is switched on:

- no brake system display appears in the status area of the on-board computer or
  - the display does not go out after 3 seconds or
  - the display does not go out when the vehicle pulls away
- ▶ Turn the key to the drive position in the ignition lock.

The  indicator lamp for ABS equipment is shown in gray in the status area of the on-board computer for approximately 3 seconds.

If the electronic control detects ABS faults, a corresponding event window appears in the on-board computer. A coloured indicator lamp for the affected ABS equipment also lights up in the status area of the on-board computer as described above.

### Braking with anti-lock protection

Anti-lock protection improves the directional stability and steerability of the vehicle under braking.

If you fail to adapt your driving style or if you are inattentive, the driving safety systems can

neither reduce the risk of an accident nor override the laws of physics. Driving safety systems are merely aids designed to assist driving. You are responsible for the distance to the vehicle in front, for vehicle speed, braking in good time and remaining in lane. Always adapt your driving style to the prevailing road and weather conditions and maintain a sufficient, safe distance from other road users. Drive carefully.

If ABS is deactivated or if there is a malfunction in the vehicle's brake system, Active Brake Assist is automatically deactivated.

When ABS is intervening:

- ▶ Continue to depress the brake pedal until the braking situation is over.  
When ABS is intervening, the continuous brake is switched off. The  indicator lamp in the instrument cluster remains on.

During a full brake application:

- ▶ Depress the brake pedal with force.

## Parking brake

### WARNING

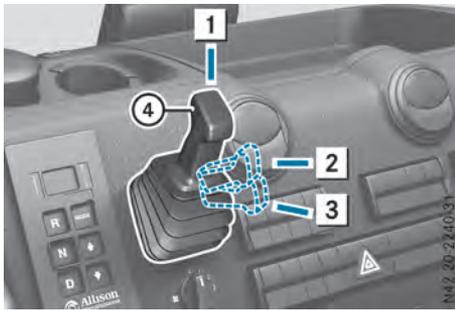
If the parking brake lever is not in the fully applied position, it automatically returns to the released position. The vehicle could roll away as a result. There is a risk of an accident.

Move the lever into the fully applied position when parking the vehicle.

### WARNING

The parking brake may not be sufficient to ensure that the loaded vehicles does not roll away on uphill and downhill gradients. There is a risk of an accident.

In the check position, check whether the parking brake will hold the loaded vehicle. If the vehicle is not held, secure it using other methods, e.g. wheel chocks.



Example: parking brake lever

Safeguard the parked vehicle against rolling away by applying the parking brake. The parking brake actuates the spring-loaded parking brake cylinder.

You can find further information about the parking brake on the trailer in the manufacturer's operating instructions.

### Applying the parking brake

- ▶ Move parking brake lever ④ from release position ① to fully applied position ②, push it downwards and engage it. If you cannot move the parking brake lever further, then it is engaged and the parking brake has been applied. The indicator lamp in the instrument cluster lights up.

### Testing the parking brake

- ▶ Apply the parking brake.
- ▶ Press the top of parking brake lever ④. While doing so, move parking brake lever ④ beyond fully applied position ② into control position ③ and hold it. The vehicle must not move.
- ▶ If the force exerted by the spring-loaded brake cannot hold the vehicle, secure the tractor vehicle with chocks.
- ▶ Move parking brake lever ④ from control position ③ back to fully applied position ② and engage it.

### Releasing the parking brake

- ▶ Pull parking brake lever ④ upwards from fully applied position ② and swing it up into released position ① as far as it will go. The indicator lamp in the instrument cluster goes out.

If the reservoir pressure in both brake circuits is at least 800 kPa (8 bar/116 psi), the parking brake releases fully.

If the indicator lamp in the instrument cluster does not go out, the reservoir pressure in the spring-loaded brake circuit has dropped below 650 kPa (6.5 bar/94 psi) and is too low.

To tow the vehicle, you can also manually release the spring-loaded parking brake cylinder on the parking brake (> page 190).

### Frequent-stop brake

#### WARNING

When securing the vehicle against rolling away with the frequent-stop brake, the braking pressure may be too low. The vehicle could roll away even though the frequent-stop brake is activated. There is a risk of an accident.

Never leave the driver's seat with the frequent-stop brake activated and be prepared to apply the brakes. If the vehicle begins to roll, apply the service brake.

#### WARNING

If you brake in wintry road conditions while the frequent-stop brake is activated, the wheels may lock shortly before stopping. Even if you take your foot off the brake pedal, the wheels remain locked. The vehicle may skid or slip away, e.g. on uphill or downhill gradients. There is a risk of an accident.

Never activate the frequent-stop brake in wintry conditions.

#### WARNING

If you do not stop the vehicle using the service brake, e.g. when rolling to a stop, the frequent-stop brake will not be activated. The vehicle could roll away. There is a risk of an accident.

Always brake the vehicle to a standstill using the service brake in order to activate the frequent-stop brake.



The frequent-stop brake uses less compressed air than the parking brake. Use the frequent-stop brake if you frequently pull away and stop for short periods of time, e.g. in refuse collection operation. The frequent-stop brake does not replace the service brake or the parking brake. Further information on parking the vehicle can be found in the "Stopping and parking" section (▷ page 108).

If you turn the key back to the stop in the ignition lock while the frequent-stop brake is engaged, the frequent-stop brake remains engaged. An event window is shown in the on-board computer and a warning tone sounds.

► **To activate:** press the lower section of the  switch.

If the  indicator lamp lights up in the status area of the on-board computer, the frequent-stop brake is activated.

► **To deactivate:** press the upper section of the  switch and move the switch to the center position.

The  indicator lamp in the status area of the on-board computer goes out.

**Vehicles with seat occupancy recognition (code D2H):** if the vehicle is equipped with seat occupancy recognition, the frequent-stop brake can be applied automatically. This prevents the vehicle from rolling away unintentionally.

The frequent-stop brake is applied automatically under the following circumstances:

- The ignition is switched on.
- The parking brake has been released.
- The driving speed is less than 1mph (2 km/h).
- The driver leaves the driver's seat and opens the vehicle door.

The function does not relieve the driver of their responsibility to park the vehicle paying atten-

tion to road and traffic conditions. Further information can be found in the "Stopping and parking" section (▷ page 108).

### Hill holder

#### WARNING

If you brake in wintry road conditions with the hill holder activated, the wheels may lock shortly before stopping. Even if you take your foot off the brake pedal, the wheels remain locked. The vehicle may skid or slip away, e.g. on uphill or downhill gradients. There is a risk of an accident.

Never activate the hill holder in wintry conditions.

#### WARNING

If you do not stop the vehicle using the service brake, e.g. when coasting to a stop, the hill holder will not be activated. The vehicle could roll away. There is a risk of an accident.

Always brake the vehicle to a standstill using the service brake in order to activate the hill holder.



The hill holder assists you when driving on uphill or downhill gradients. The hill holder prevents the vehicle from rolling and facilitates controlled pulling away.

► **To activate:** press the upper section of the  switch.

► **To deactivate:** press the lower section of the  switch and move the switch to the centre position.

If you do not depress the brake pedal while the vehicle is stationary and the hill holder is active, an acoustic warning sounds briefly. The hill holder is deactivated and the  indicator lamp in the instrument cluster goes out.

If you depress the brake pedal until the vehicle is stationary while the hill holder is activated, the hill holder is engaged. The  indicator lamp in the instrument cluster lights up.

If you then apply the parking brake, the hill holder is deactivated and the  indicator lamp in the instrument cluster goes out. The vehicle is then held by the parking brake. After the parking brake is released, the hill holder is no longer active. If you depress the brake pedal, the hill holder remains active after the parking brake is released.

If you depress the accelerator pedal and the vehicle pulls away, the hill holder is released automatically. The  indicator lamp in the instrument cluster goes out.

## Continuous brake

### Important safety notes

#### WARNING

If you activate the continuous brake or shift to a lower gear on a slippery road surface in order to increase the engine's braking effect, the drive wheels may lose traction. There is an increased risk of skidding and accidents.

Do not activate the continuous brake and do not shift to a lower gear in order to increase the engine's braking effect on a slippery road surface.

#### WARNING

If there is a retarder or retarder control malfunction, braking characteristics can change. The vehicle can brake uncontrollably. The wheels can block and thus lose traction on slippery road surfaces. This can cause the vehicle to skid. There is a risk of an accident.

Drive with even greater care or stop the vehicle immediately in accordance with the traffic conditions. Have the retarder

checked and repaired immediately at a qualified specialist workshop.

Always observe the warning lamps and display messages and follow the described measures.

The engine brake and retarder are used as a continuous brake.

You can utilise the engine's braking effect, particularly on long downhill gradients if you:

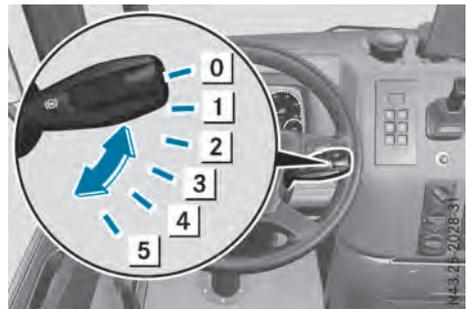
- activate the continuous brake
- shift to a lower gear in good time

The continuous brake is activated automatically if:

- after several brake applications, the vehicle electronics detect that the vehicle is loaded and you then depress the brake pedal
- cruise control, speed limiter or distance control assistant intervene in overrun mode

### Activating/deactivating the continuous brake

 If the continuous brake is deactivated and the  indicator lamp in the instrument cluster does not go out, have the continuous brake checked at a qualified specialist workshop.



Example: continuous brake lever (with 5 brake levels)

Vehicles without a retarder are equipped with only 2 brake stages (**1** - **2**).

Depending on the engine, the transmission and the power setting, vehicles with a retarder are equipped with a maximum of 5 brake stages (**1** - **5**).

If you turn the ignition lock to the drive position and the  indicator lamp lights up in

the instrument cluster, the continuous brake lever is not in position **0**.

- **To activate:** pull the continuous brake lever to the desired brake level.

The  indicator lamp in the instrument cluster lights up.

The braking effect of the continuous brake is lowest in position **1** and highest in position **5**.

- **To deactivate:** press the continuous brake lever to position **0**.

The  indicator lamp in the instrument cluster goes out.

When ABS (Anti-lock Braking System) intervenes, the continuous brake is deactivated.

The  indicator lamp in the instrument cluster remains on.

## Engine brake

The effectiveness of the engine brake depends on the engine speed. A high engine speed results in more effective engine braking.

Observe the effective engine braking range marked on the rev counter (▷ page 68).

At very low outside temperatures, the engine brake has limited or no effect after the engine has been started.

## Retarder

### General notes

If the  indicator lamp flashes in the instrument cluster, the retarder's braking power is reduced.

- Shift down in good time.  
The engine braking effect and the engine cooling effect are increased.

## Automatic transmission

### Important safety notes

- ❗ Only let the vehicle coast briefly in neutral position. Extended coasting of the wheels results in transmission damage, e.g. when towing away.

If the continuous brake (engine brake/retarder) is activated, the engine speed for downshifting is higher than when the continuous brake is deactivated.

Pay attention to the on-board computer's event messages, which indicate particular operating states and help to prevent damage to the automatic transmission (▷ page 91).

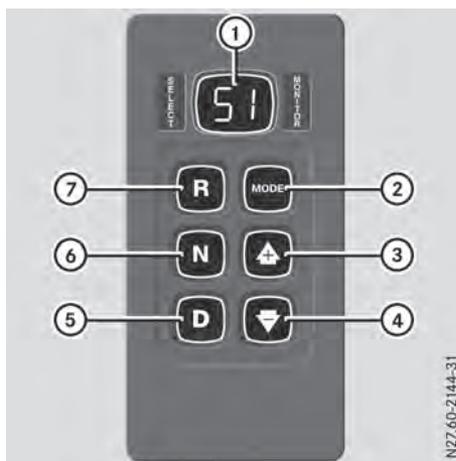
The automatic transmission features touch-key gearshift.

The individual gears are shifted automatically depending on:

- shift range
- engine speed
- accelerator pedal position
- drive program
- application of the continuous brake

You can restrict or derestrict the shift range at any time.

### Touch-key gearshift and gear indicator



- ① Display  
Left: selected shift range, e.g. **5**  
Right: selected gear, e.g. **1**  
Footer: **POWER**, when drive program is selected
- ② MODE button
- ③ Derestricts the shift range 
- ④ Restricts the shift range 
- ⑤ Drive position **D**
- ⑥ Neutral **N**
- ⑦ Reverse gear **R**

## Shift ranges

Display ① shows the selected shift range on the left and the selected gear on the right, e.g. **5** **1**.

**R**

### Reverse gear

Only engage reverse gear when the vehicle is stationary and the engine is at idling speed.

**N**

### Neutral position

Power transmission from the engine to the drive axle is disconnected. When you release the service brake and the parking brake, the vehicle can be moved freely.

When neutral position is selected, the status area of the display in the on-board computer shows the  symbol.

**D**

### Drive position

The automatic transmission shifts all six forward gears automatically. The drive position will provide optimal driving characteristics in almost all operating circumstances.



### Restrict or derestrict the shift range

While driving, you can restrict or derestrict the shift range manually for uphill or downhill gradients using the  and  buttons.

## Drive programs

The automatic transmission offers the **Economy** and **Power** drive programs. The drive programs support your desired driving style. The **Economy** standard drive program is designed for a comfortable, economic driving style and makes driving on slippery road surfaces easier.

The **Power** drive program is for travelling at higher engine speeds and for greater performance requirements. Only choose the **Power** drive program when necessary, and then only for a short period. Otherwise, the fuel consumption is increased.

After starting the engine, the standard drive program **Economy** is always active.

You can switch between the drive programs at any time:

- ▶ **To change the drive program:** press MODE ②.

When the **Power** drive program is selected, display ① also shows **POWER**.

## Pulling away and stopping the vehicle

### Pulling away

- ▶ Depress the brake pedal.
- ▶ Press the **D** or **R** button.
- ▶ Release the brake pedal and depress the accelerator pedal.

**i** If the transmission oil temperature falls below 23 °F (−5 °C) the automatic transmission has cooled down. The transmission electronics then only engage the reverse gear or second forward gear. If the transmission oil temperature exceeds 23 °F (−5 °C) the transmission electronics will shift to all gears once again.

### Stopping

**!** Only let the vehicle coast briefly in neutral position. Extended coasting of the wheels results in transmission damage, e.g. when towing away.

If the continuous brake (engine brake/retarder) is activated, the engine speed for downshifting is higher than when the continuous brake is deactivated.

When stopping briefly, e.g. at traffic lights:

- ▶ Maintain the gear position and stop the vehicle with the service brake.

When stopping for a longer period with the engine running:

- ▶ Shift the transmission to neutral position.

## Driving tips

### Accelerating

You can use the accelerator pedal position to actively influence the shift point:

- light throttle application: early upshift
- heavy throttle application: late upshift
- kickdown: maximum upshift delay and extremely early downshift

### Kickdown gearshifting

Use kickdown to increase performance and, if necessary, for maximum vehicle acceleration.

- ▶ Depress the accelerator pedal past the pressure point to the stop.  
The automatic transmission shifts down to a lower gear depending on the engine speed.
- ▶ Ease off the accelerator pedal slightly once the desired speed is reached.  
The automatic transmission shifts up again.

### Driving on uphill and downhill gradients

**!** If you have limited the shift range, make sure that the engine speed does not rise into the red danger zone of the tachometer. Exceeding the limiting speed for an extended period can lead to engine damage.

When driving on extreme uphill gradients or long downhill gradients, shift to a shift range with high engine performance and engine braking effect in good time.

### Manoeuvring and rocking free

Manoeuvring in a tight space:

- ▶ Control the vehicle's speed by measured application of the brakes.
- ▶ Depress the accelerator moderately and steadily.
- i** You can shift back and forth between drive position **[D]** and reverse gear **[R]** at low speeds without applying the brakes. This helps when manoeuvring rapidly or when rocking the vehicle out of snow or slush, for example.

## Operation

### Axle and wheel loads

**!** Do not exceed the maximum permissible gross vehicle weight. Observe the permissible axle and wheel loads. Avoid one-sided wheel loads. The difference between wheel loads must not exceed 4% of the actual, existing axle load.

The following parts of the vehicle may otherwise be damaged:

- tires
- chassis
- axles

**!** Observe the maximum permitted axle load when tilting and when raising or lowering platform-type swap bodies/containers. Do not exceed the values specified in the body/equipment mounting directives.

The following parts of the vehicle may otherwise be damaged:

- tires
- chassis
- axles

While driving, pay regular attention to the indicator and warning lamps and the displays on the on-board computer.

### ASR (acceleration skid control)

#### Driving with ASR

ASR can neither reduce the risk of an accident nor override the laws of physics if the driver does not pay attention when pulling away or accelerating. ASR is only an aid. You should always adapt your driving style to suit prevailing road and weather conditions.

ASR considerably improves traction, i.e. power transmission between the tires and the road surface, and therefore also improves the vehicle's driving stability. ASR assists with pulling away and accelerating, particularly on slippery surfaces.

If the drive wheels:

- spin on one or both sides of the vehicle, ASR is activated automatically.
- spin on one side, ASR brakes them automatically.
- spin on both sides, ASR automatically reduces the engine's power output.

If ASR intervenes:

- the  indicator lamp in the instrument cluster flashes
  - you cannot activate cruise control
  - and cruise control has already been activated, it will remain active. It is not possible to accelerate or decelerate using cruise control.
- ▶ Turn the key to the drive position in the ignition lock.  
The  indicator lamp in the instrument cluster lights up and goes out after approximately 2 seconds. ASR is activated.
- If the  indicator lamp does not go out, then ASR has a malfunction. Have the cause of the malfunction rectified at a qualified specialist workshop.

## Deactivating/activating ASR

### WARNING

If deactivated, ASR will not attempt to stabilize the vehicle during pulling away and acceleration. There is an increased risk of skidding and of an accident.

Only deactivate ASR in the situations described in the following.

Traction control (ASR function) is part of Stability Control Assist. If you deactivate Stability Control Assist, traction control is also deactivated (▷ page 117).

## Stability Control Assist

### Function and notes

Stability Control Assist monitors handling and traction, i.e. power transmission between the tires and the road surface. If it detects that the vehicle is deviating from the direction desired by the driver, one or more wheels are braked to stabilise the vehicle. The engine output may

also be modified to keep the vehicle on the desired course within physical limits. Stability Control Assist can also stabilise the vehicle during braking or in critical driving situations, e.g. sudden swerving or fast cornering.

Stability Control Assist is operational at speeds above approximately 12 mph (20 km/h) regardless of the operating status of the service brake or continuous brake. If Stability Control Assist intervenes, the  indicator lamp in the instrument cluster flashes.

If you fail to adapt your driving style or if you are inattentive, Stability Control Assist can neither reduce the risk of an accident nor override the laws of physics. Stability Control Assist is only an aid, and you are always responsible for the distance to the vehicle in front, for vehicle speed and for braking in good time. Always adapt your driving style to the prevailing road and weather conditions and maintain a sufficient, safe distance from other road users. Drive carefully.

When the engine is running and the  indicator lamp in the instrument cluster lights up permanently, Stability Control Assist is malfunctioning. Have Stability Control Assist checked at a qualified specialist workshop.

Regardless of the vehicle load or road surface conditions, Stability Control Assist reduces the risk that the vehicle:

- skids
- jack-knifes
- tips

Stability Control Assist stabilises the tractor/semitrailer combination or drawbar combination using the following automatic control interventions:

- engine output reduction
- targeted braking of individual wheels on the vehicle
- braking of the entire vehicle

## Deactivating/activating Stability Control Assist

### WARNING

If you deactivate Stability Control Assist, Stability Control Assist does not stabilize the vehicle. There is an increased risk of skidding and accidents.

Only deactivate Stability Control Assist in the situations described below.

It may be better to deactivate Stability Control Assist in the following situations:

- when driving on a loose surface
- when driving with snow chains
- when operating a snowplough

Activate Stability Control Assist as soon as the situations previously described are no longer present.



When you start the engine, Stability Control Assist is automatically activated.

► Press the  button.

If the  indicator lamp in the instrument cluster lights up, Stability Control Assist is deactivated.

**!** Observe the following points. You could otherwise damage the differential locks.

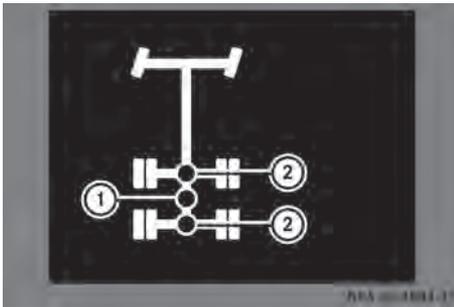
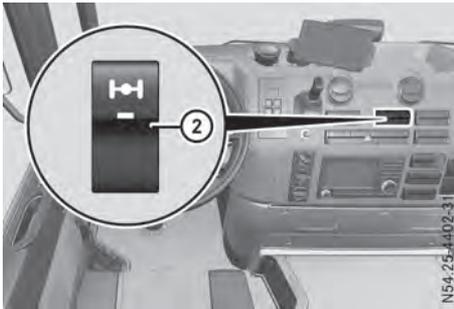
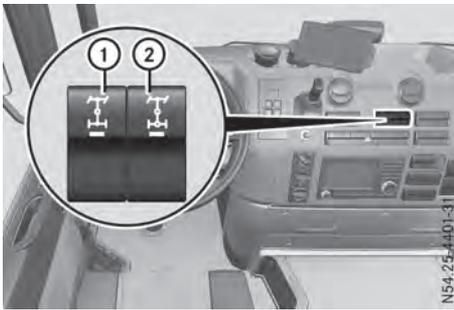
- Do not engage the differential locks if the drive wheels are spinning.
- Engage the differential locks only when the vehicle is stationary or when travelling at walking pace.
- Do not engage the differential locks while depressing the accelerator or brake pedal.
- Pull away slowly after engaging the differential locks. The differential lock teeth may not be fully engaged.
- Do not drive on high-grip surfaces with the differential locks engaged.
- Do not drive faster than 30 mph (50 km/h) with the differential lock engaged.

## Differential locks

### WARNING

When differential locks are engaged on a firm, high-grip surface, the vehicle's steerability is greatly impaired. In particular, engaging the differential locks when cornering could lead to you losing control of the vehicle. There is a risk of an accident.

Disengage the differential locks immediately on firm surfaces with good grip.



-  ① Engages/disengages the transfer case, inter-axle lock button and activates/deactivates the display
-  ② Engages/disengages the cross-axle lock, rear axle button and activates/deactivates the display
-  ② Engages/disengages the cross-axle lock, rear axle button and activates/deactivates the display

Vehicles with one cross-axle lock on the rear axle are equipped with the  switch. Vehicles with more than one differential lock are equipped with the  switch for the inter-axle differential lock and with the  switch for the cross-axle differential locks.

When the differential lock is engaged, the display shows  . When the differential lock is

disengaged, the display shows  . If the  dot in the display is flashing, the differential lock has not yet engaged/disengaged. The conditions for engaging/disengaging have not been fulfilled, e.g. due to differing wheel rotational speeds. The differential lock is automatically engaged as soon as all gearshift conditions have been fulfilled.

Engage the differential locks to improve traction, e.g. on slippery road surfaces or off-road. The individual differential locks can only be engaged in sequence.

During an ABS braking regulation, the inter-axle lock is disengaged and the dot flashes in the display. Once the ABS regulation is finished, the inter-axle lock is re-engaged.

### Activating

- ▶ Stop the vehicle.
- ▶ Press the upper section of the  switch. The cross-axle lock on the rear axle is engaged. The indicator lamps in the  switch and in the instrument cluster light up.

or

- ▶ Press the  button. The indicator lamp in the  button lights up. The inter-axle lock is engaged.
- ▶ Press the  button. The indicator lamp in the  button lights up. The cross-axle locks on the rear axles are engaged.

 The respective differential lock is only engaged when the display shows  .

### Deactivating

- ▶ Press the  button. The indicator lamp in the  button and the message in the display disappear. The cross-axle lock on the rear axle is disengaged.

or

- ▶ Press the  button. The indicator lamp in the  button goes out. The cross-axle locks on the rear axles are disengaged.

or

- ▶ Press the  button. The indicator lamps in the  and  buttons go out. The differential locks are disengaged. The differential lock indicators in the display go out.

**i** The respective differential lock is only disengaged when the display shows .

▶ If  flashes in display, briefly alter the speed, e.g. pull away.

**i** If the differential locks are engaged and you drive faster than 30 mph (50 km/h) the current status of the differential locks is again shown in the display. Disengage the differential locks or drive at a speed below 30 mph (50 km/h).

### Idling speed



Buttons on the multifunction steering wheel

After the engine has started, the idling speed is controlled automatically according to the coolant temperature. The engine idling speed may differ in certain operating conditions depending on the engine or on vehicles with power take-off.

You can set the idling speed to between approximately 600 and 800 rpm. The engine idling speed may differ for special-purpose bodies.

The engine idling speed can be set via the on-board computer. This makes it possible to operate auxiliary equipment such as pumps at their working speed.

### Setting the idling speed

- ▶ Press the  button on the multifunction steering wheel repeatedly until the **Engine speed** input window is shown in the on-board computer.
- ▶ Press the  or  button to increase or decrease the idling speed in approximately 20 rpm increments.

▶ Press the  button to exit the input window.

or

▶ Wait for approximately 3 seconds. The setting is stored automatically.

### Switching off the idling speed setting

▶ Press the  button.

or

▶ Press the  button repeatedly until the on-board computer shows the **Engine speed** input window.

▶ Press the  button.

The increased idle speed is automatically reset if you drive faster than approximately 12 mph (20 km/h).

## Driving systems

### Introduction to driving systems

The vehicle may be equipped with the following driving systems:

- Speed limiter (▷ page 120)
- Cruise control (▷ page 122)
- Distance control assistant (▷ page 124)
- Active Brake Assist (▷ page 128)
- Lane Keeping Assist (▷ page 134)
- Blind spot camera system (▷ page 135)

With the right-hand button group on the multifunction steering wheel, you can select the speed limiter, cruise control and distance control assistant driving systems.

You can activate or deactivate Active Brake Assist and Lane Keeping Assist using the buttons on the dashboard.

Use the Blind Spot Assist control lever on the steering wheel to control the feature's displays on a separate monitor.

### Speed limiter

### Important safety notes

The speed limiter is only an aid. You are responsible for the distance to the vehicle in front, for vehicle speed, braking in good time and remaining in lane. Always adapt your driving style to the prevailing road and weather

conditions and maintain a sufficient, safe distance from other road users.

Also observe the warning notes of the other driving systems.

## Overview



-  Selects the speed limiter
-  Activates and sets the current limit speed/increases the set limit speed
-  Activates and calls up the stored limit speed/decreases the set limit speed
-  Selects cruise control (▷ page 122)/selects the distance control assistant (▷ page 124)
-  Deactivates the speed limiter

The **LIM** symbol in the on-board computer shows the status of the speed limiter by color:

- Gray symbol: the speed limiter is selected, but not activated.
- White symbol: the speed limiter is active and is restricting the vehicle speed to the set limit speed.

## Activating

### Functions and activation conditions

The speed limiter restricts the vehicle speed to the set limit speed. It is possible to accelerate the vehicle up to the set limit speed using the accelerator pedal. In order to keep the set limit speed on downhill gradients, the speed limiter automatically brakes the vehicle with the continuous brake. If the set speed is exceeded, the **LIM** symbol in the on-board computer flashes.

If the speed limiter cannot be activated, the on-board computer will display  
- - - miles/h in gray.

### Selecting the speed limiter

- ▶ Press the **LIM** button.  
The on-board computer shows the **LIM** symbol in gray.

### Activating when driving

- ▶ Select the speed limiter.
- ▶ Drive at the desired speed and briefly press the **SET** button.  
The speed limiter is activated and the current vehicle speed is stored as the limit speed.
- or
- ▶ Briefly press the **RES** button.  
The speed limiter is activated and assumes the stored limit speed.  
The on-board computer shows the **LIM** symbol and the set limit speed in white.

### Increasing or decreasing the limit speed

You can change the settings of the limit speed while driving.

- ▶ Activate the speed limiter.
- ▶ **To adjust in 0.6 mph increments:** briefly press the **RES** or **SET** button repeatedly until the desired speed is shown in the on-board computer.
- or
- ▶ **To adjust in 3 mph increments:** press and hold the **RES** or **SET** button until the desired speed is shown in the on-board computer.

## Driving

It is possible to exceed the set limit speed, e.g. when overtaking:

- ▶ Briefly depress the accelerator pedal beyond the point of resistance (kickdown). The set limit speed is still shown and the **LIM** symbol flashes in the on-board computer.
- ▶ When overtaking is completed, briefly release the accelerator pedal and depress it again.  
The speed limiter again restricts the vehicle speed to the set limit speed.

## Deactivating

The limit speed remains stored if you deactivate the speed limiter.

- ▶ Press the **OFF** button.

The on-board computer shows the **LIM** symbol in gray.

or

- ▶ Using the **CC** button, select cruise control or the distance control assistant.

The on-board computer shows the **CC** or **RES** symbol and the set speed in gray.

## Cruise control

### Important safety notes

#### **⚠ WARNING**

If you call up the stored speed and it differs from the current speed, the vehicle accelerates or decelerates. If you do not know the stored speed, the vehicle could accelerate or brake unexpectedly. There is a risk of an accident.

Pay attention to the road and traffic conditions before calling up the stored speed. If you do not know the stored speed, store the desired speed again.

- ❗ Do not exceed the maximum design speed of the individual gears. Observe the tachometer.

If you fail to adapt your driving style or fail to pay attention to your surroundings, cruise control can neither reduce the risk of an accident nor override the laws of physics. Cruise control cannot take road and weather conditions into account, nor the prevailing traffic situation. Cruise control is only an aid. You are responsible for the distance to the vehicle in front, for vehicle speed, braking in good time and remaining in lane. Always adapt your driving style to the prevailing road and weather conditions and maintain a sufficient, safe distance from other road users.

Do not use cruise control:

- in traffic conditions that do not allow you to drive at a constant speed (e.g. heavy traffic

or winding roads). You may otherwise cause an accident.

- on slippery roads. The drive wheels may lose their grip when braking or accelerating and the vehicle may skid.
- when there is low visibility, e.g. due to fog, heavy rain or snow.

## Overview



- CC** Selects cruise control/selects the distance control assistant (▷ page 124)
- SET** Activates and adjusts current speed or increases set speed
- RES** Activates and calls up stored speed or reduces set speed
- LIM** Selects the speed limiter (▷ page 121)
- OFF** Deactivates cruise control

The **CC** symbol in the on-board computer shows the status of cruise control in color:

- gray symbol: cruise control is selected, but not activated
- white symbol: cruise control is activated and maintains the set speed

## Activating

### Functions and activation conditions

Cruise control maintains the set speed of the vehicle for you. If the set speed is exceeded on downhill gradients by more than the set speed tolerance, the continuous brake is applied automatically.

If you are driving slower than 9 mph (15 km/h), cruise control cannot be activated.

If cruise control cannot be activated, the on-board computer will display - - - miles/h in gray.

Cruise control is deactivated automatically if:

- you are driving slower than 6 mph (10 km/h)
- the transmission is shifted into neutral for more than approximately 5 seconds

If cruise control is deactivated automatically, a warning tone sounds.

### Selecting cruise control

- ▶ Press the  button repeatedly until the on-board computer shows the  symbol in gray.

### Activating when driving

- ▶ Select cruise control.
- ▶ Drive at the desired speed and briefly press the  button. Cruise control is activated and the current speed is stored.

or

- ▶ Briefly press the  button. Cruise control is activated and assumes the stored speed. The on-board computer shows the  symbol and the set speed in white.
- ▶ Release the accelerator pedal. In order to maintain the set speed, cruise control automatically brakes or accelerates the vehicle.

## Setting the speed and speed tolerance

### Increasing/reducing the speed

You can change the speed setting while driving.

- ▶ Activate cruise control.
- ▶ **To adjust in 0.3 mph increments:** press the  or  button repeatedly until the desired speed is shown in the on-board computer.

or

- ▶ **To adjust in 3 mph increments:** press and hold the  or  button until the desired speed is shown in the on-board computer.

### Setting the speed tolerance

By setting the speed tolerance, you define by how much the set speed may be exceeded (▷ page 127).

## Driving

### Driving tips

You can decelerate using the continuous brake. Cruise control remains activated.

If you reset the continuous brake lever, but do not deactivate it, the vehicle will accelerate on inclines up to the set speed.

If the continuous brake is deactivated, the vehicle will accelerate to the last stored speed.

If cruise control is decelerating the vehicle using the continuous brake and you simultaneously depress the brake pedal, cruise control remains activated.

If the braking power from the continuous brake is insufficient:

- ▶ Shift down a gear and reduce your speed. If you shift down on a downhill gradient without adjusting the speed, cruise control sets an engine speed lower than the engine overspeed. The set speed remains set and is automatically re-established as soon as this is possible in a higher gear.

The vehicle is braked by the continuous brake automatically if:

- cruise control is activated and
- the vehicle speed exceeds the set speed by more than the speed tolerance

When the continuous brake is activated and you activate cruise control, the continuous brake regulates the set speed on downhill slopes.

### Overtaking

It is possible to exceed the set speed, e.g. when overtaking:

- ▶ Depress the accelerator pedal.
- ▶ When the overtaking maneuver is finished, release the accelerator pedal again. Cruise control adjusts the vehicle's speed to the set speed.

### Deactivating

The speed remains stored if you deactivate cruise control.

- ▶ Press the  button.
- or

► When cruise control accelerates the vehicle, depress the brake pedal.  
The on-board computer shows the  symbol and the set speed in gray.

or

► Using the  button, select the speed limiter.  
The on-board computer shows the  symbol in gray.

or

► Select the distance control assistant with the  button.  
The on-board computer shows the  symbol and the set speed in white. The distance control assistant is activated (▷ page 126).

Continue to drive carefully and be ready to brake, especially if the distance control assistant warns you.

#### **WARNING**

The distance control assistant brakes your vehicle with up to 30% of the maximum possible deceleration. If this deceleration is insufficient, distance control assistant issues an audible and visual warning. There is a risk of an accident.

In these cases, apply the brakes yourself and try to take evasive action.

Observe the safety warnings detailing situations in which vehicles in front may not be detected correctly (▷ page 131).

The distance control assistant may not detect narrow vehicles driving in front, e.g. motorcycles, and vehicles driving on a different line.

In particular, be aware of the following driving situations:

- Cornering, entering and exiting bends
- Your own vehicle driving on a different line or vehicles in front of you driving on a different line
- Other vehicles changing lane
- Vehicles turning off
- Overtaking
- Winding stretches of road
- Obstacles and stationary vehicles

Clean the distance sensor of the distance control assistant (▷ page 157).

If you fail to adapt your driving style or if you are inattentive, the distance control assistant can neither reduce the risk of an accident nor override the laws of physics. The distance control assistant cannot take the road and weather conditions into account, nor the prevailing traffic situation. The distance control assistant is only an aid. You are responsible for the distance to the vehicle in front, for vehicle speed, braking in good time and remaining in lane. Always adapt your driving style to the prevailing road and weather conditions and maintain a sufficient, safe distance from other road users.

## Distance control assistant

### Important safety notes

#### **WARNING**

Distance control assistant does not respond to:

- people or animals
- stationary obstacles on the road, e.g. stopping or parking vehicles
- oncoming vehicles and crossing traffic

As a result, the distance control assistant may not warn you or intervene in these situations. There is a risk of an accident.

Always pay careful attention to the traffic situation and be ready to brake.

#### **WARNING**

The distance control assistant cannot always clearly identify other road users and complex traffic situations.

In such cases, the distance control assistant can:

- give an unnecessary warning and then brake the vehicle
- neither give a warning nor intervene
- accelerate or brake unexpectedly

There is a risk of an accident.

Do not use the distance control assistant:

- on slippery roads. The drive wheels may lose their grip when braking or accelerating and the vehicle may skid.
- when there is low visibility, e.g. due to fog, heavy rain or snow.

If the distance control assistant no longer detects a vehicle driving in front, the distance control assistant may accelerate to the stored speed. On a filter lane or a slip road, this speed may be too high.

## Overview



- Selects the distance control assistant/ selects cruise control (▷ page 122)
- Activates and adjusts current speed/ increases set speed
- Activates and calls up stored speed/ reduces set speed
- Selects the speed limiter (▷ page 120)
- Deactivates the distance control assistant

The symbol in the on-board computer shows the status of the distance control assistant by color:

- gray symbol: the distance control assistant is selected, but not activated
- white symbol: the distance control assistant is activated, but a vehicle in front has not been detected
- white symbol with a blue vehicle inside the symbol: the distance control assistant is activated and a vehicle in front has been detected

When a vehicle has been detected up ahead, the on-board computer also displays its speed and the distance to the detected vehicle.

- The **Assistance** menu window also displays the speed of the detected vehicle and the distance to the detected vehicle in the Driving menu (▷ page 76).

## Activating

### Functions and activation conditions

The distance control assistant controls the speed and supports you in automatically maintaining the distance from a vehicle detected in front. If there is no vehicle in front, the distance control assistant operates in the same way as cruise control in the speed range between 9 and 56 mph (15 and 90 km/h).

If the distance control assistant detects a vehicle in front driving at a slower speed, your vehicle is slowed and the specified minimum distance selected by you is maintained.

The distance control assistant brakes the vehicle with the continuous brake if:

- the vehicle exceeds the set speed, including the set speed tolerance, e.g. on a downhill gradient
- a slower vehicle in front is detected

When the continuous brake slows the vehicle, the indicator lamp lights up in the instrument cluster.

The distance control assistant may also brake the vehicle using the service brake in order to maintain the specified minimum distance. If the vehicle in front is no longer detected, e.g. if it changes lane, your vehicle will accelerate up to the set speed.

The distance control assistant cannot be activated or is deactivated automatically if:

- you are driving slower than 9 mph (15 km/h)
- you shift the transmission into neutral for more than approximately five seconds
- you depress the brake pedal
- you select the reverse gear
- for vehicles with air suspension, the chassis is not within the driving level
- there is a malfunction in the brake system or in the electronics
- the distance sensor initialization is not yet complete

If the distance control assistant is deactivated automatically, a warning tone sounds.

If the distance control assistant cannot be activated, the on-board computer will display **- - , - miles/h** in gray.

The distance control assistant remains activated if:

- you decelerate using the continuous brake
- it decelerates the vehicle using the continuous brake or the service brake and you simultaneously depress the brake pedal

If your vehicle accelerates and you depress the brake pedal, the distance control assistant is deactivated automatically.

### Selecting the distance control assistant

- ▶ Press the  button repeatedly until the on-board computer shows the  symbol in gray.

If you change from cruise control to the distance control assistant and the distance control assistant was activated earlier, the  symbol appears in white in the on-board display. The distance control assistant is activated. The vehicle adapts its speed to that of the vehicle in front, but only up to the desired and set speed.

### Activating when driving

- ▶ Drive at a speed above 9 mph (15 km/h).
- ▶ Select the distance control assistant.
- ▶ Briefly press the  button. The distance control assistant is activated and the current speed is set.

or

- ▶ Briefly press the  button. The distance control assistant is activated and the last stored speed is set. The on-board computer shows the  symbol and the set speed in white.
- ▶ Release the accelerator pedal. The vehicle adapts its speed to that of the vehicle in front, but only up to the desired and set speed.

### Setting the speed and speed tolerance/specified minimum distance

#### Increasing/reducing the speed

- ▶ Activate the distance control assistant.
- ▶ **To adjust in 0.3 mph increments:** press the  or  button repeatedly until

the desired speed is shown in the on-board computer.

or

- ▶ **To adjust in 3 mph increments:** press and hold the  or  button until the desired speed is shown in the on-board computer.

### Setting the speed tolerance

By setting the speed tolerance, you define by how much the set speed may be exceeded ( $\triangleright$  page 127).

### Setting a specified distance to the vehicle in front



The minimum distance for the distance control assistant can be set to 5 levels. If you restart the engine, the mean specified distance is available for selection.

Make sure that you maintain the minimum distance to the vehicle in front required by law. Adjust the specified minimum distance to the vehicle in front if necessary.

- ▶ Press the  button repeatedly until the **ACC distance** input window appears in the on-board computer.
- ▶ Press the  or  button to reduce/increase the specified minimum distance. The bar display shows the specified minimum distance you have selected.
- ▶ Press the  button to exit the input window.

or

- ▶ Wait for approximately three seconds. The setting is stored automatically.

## Driving

### Collision warnings

If a collision warning is given, a yellow event window with the  symbol appears in the on-board computer. A double warning tone also sounds. The event window is displayed for as long as the hazardous situation persists.

If a warning appears in the on-board computer when the vehicle is in motion:

- ▶ Pay particular attention to the traffic situation.
- ▶ Slow down the vehicle using the service brake.

If you depress the accelerator pedal or indicate a turn, the collision warning tone is suppressed.

### Overtaking

It is possible to exceed the set speed, e.g. when overtaking:

- ▶ Maintain a sufficient distance to the vehicle in front.
- ▶ Depress the accelerator pedal.
- ▶ When the overtaking maneuver is finished, release the accelerator pedal again.  
The distance control assistant adjusts the speed to the set speed.

### Particular driving situations

Observe the notes on particular driving situations under "Active Brake Assist" (▷ page 131).

### Deactivating

The speed remains stored if you deactivate the distance control assistant.

- ▶ Press the  button.

or

- ▶ When the distance control assistant accelerates the vehicle, depress the brake pedal.  
The on-board computer shows the  symbol and the set speed in gray.

or

- ▶ Using the  button, select the speed limiter.  
The on-board computer shows the  symbol in gray.

or

- ▶ Using the  button, select cruise control.

The on-board computer shows the  symbol and the set speed in white. Cruise control is activated (▷ page 122).

Under "Functions and switch on conditions", observe the conditions listed that lead to automatic deactivation of the distance control assistant (▷ page 125).

### Speed tolerance in the driving systems



The speed tolerance defines for cruise control and for the distance control assistant by how much the set speed may be exceeded. The speed tolerance helps to better utilize momentum from downhill gradients and thus save fuel.

The speed tolerance can be set to between 1 and 9 mph (2 and 15 km/h).

If you set the speed tolerance to between 2 and 9 mph (4 and 15 km/h) the value remains saved even after you restart the engine.

The on-board computer shows the speed tolerance alongside the set speed, e.g.

**30 miles/h**<sup>+6</sup>. When cruise control or the distance control assistant is activated, the speed limiter brakes the vehicle by 2 mph (4 km/h) by applying the continuous brake, regardless of the set speed tolerance.

- ▶ Press the  button repeatedly until **Eco Drive** is displayed in the input window.
  - ▶ Press the  or  button to select the  menu bar.  
In the  menu bar, set the value by which the stored speed may be exceeded.
  - ▶ Press the  or  button to increase/reduce speed tolerance in 0.6 mph increments.
  - ▶ Press the  button to exit the input window.
- or
- ▶ Wait for approximately 3 seconds.  
The setting is stored automatically.

## Active Brake Assist

### Active Brake Assist

#### General notes

The term Active Brake Assist, used in the following sections, also applies to Active Brake Assist 3 and Active Brake Assist 4.

Active Brake Assist assists you:

- in ideally avoiding a collision with the vehicle in front
- in minimising the danger of a collision with the vehicle in front or a stationary obstacle in the path of your vehicle
- in reducing the consequences of a collision with the vehicle in front

If Active Brake Assist detects the risk of a collision with the vehicle in front, it issues an audible and visual warning. If you do not react and the risk persists, Active Brake Assist automatically initiates partial braking of the vehicle. If you do not react to the partial brake application, Active Brake Assist automatically initiates an emergency braking manoeuvre.

Within the system boundaries, Active Brake Assist 3 and Active Brake Assist 4 can:

- react earlier to an obstacle in the path of your vehicle
- perform an emergency braking manoeuvre at higher speeds as a full brake application to bring the vehicle to a standstill

Within the system boundaries, Active Brake Assist 4 can also:

- react to moving people with a warning and partial brake application

### Important safety notes

#### WARNING

Active Brake Assist with cross-traffic function will initially brake your vehicle by a partial application of the brakes if a danger of collision is detected. There may be a collision unless you brake yourself. Even after subsequent full application of the brakes a collision cannot always be avoided, particularly when approaching at too high a speed. There is a risk of an accident.

Always apply the brakes yourself and try to take evasive action, provided it is safe to do so.

#### WARNING

Active Brake Assist cannot always recognise other road users and complex traffic conditions.

In such cases, Active Brake Assist may:

- give an unnecessary warning and then brake the vehicle
- neither give a warning nor intervene

There is a risk of an accident.

Continue to drive carefully and be prepared to brake, particularly if Active Brake Assist warns you.

#### WARNING

Active Brake Assist does not react to:

- people or animals
- oncoming vehicles

As a result, Active Brake Assist might not warn you or intervene in these situations. There is a risk of an accident.

Always pay careful attention to the traffic situation and be ready to brake.

-  Active Brake Assist 4 also reacts to people moving on the roadside.

If you fail to adapt your driving style or if you are inattentive, Active Brake Assist can neither reduce the risk of an accident nor override the laws of physics.

You are responsible for keeping a safe distance to the vehicle in front, for the vehicle speed, braking in good time and remaining in lane. You should always adapt your driving style to suit prevailing road and weather conditions.

Brake the vehicle using the service brake if:

- a red event window with the  symbol appears in the on-board computer
- an intermittent warning tone sounds
- an intermittent warning tone sounds and automatic partial braking was initiated

The following may not be detected by Active Brake Assist:

- narrow vehicles, e.g. motorcycles
- vehicles driving on a different line

Read the safety notes on driving conditions that may lead to system restrictions (> page 131).

Vehicles with Active Brake Assist 4: the system may not react correctly:

- to stationary people
- to people or vehicles moving quickly within the detection range of the sensors
- to people in a tunnel

Active Brake Assist may unexpectedly issue warnings or brake your vehicle:

- in car washes
- to stationary obstacles inside a tunnel
- on ferries
- in loading areas
- at tollgates
- in workshops

If no visual and/or acoustic warning is issued in a critical situation:

- Active Brake Assist has not recognised the danger of the situation
- Active Brake Assist is deactivated
- Active Brake Assist has failed

If a visual and/or acoustic warning is issued or a partial braking manoeuvre is performed in a non-critical situation:

- suppress Active Brake Assist or
- press the  button to deactivate Active Brake Assist

You can suppress or deactivate Active Brake Assist if you:

- use a turn signal
- depress the accelerator pedal
- press the  button

**i** Vehicles with Active Brake Assist 4: interventions of the system triggered by the driver cannot be suppressed by switching on the turn signal.

You can cancel an emergency braking manoeuvre triggered by Active Brake Assist, if you:

- depress the accelerator pedal beyond the pressure point (kickdown)
- press the  button

Clean the cover of the Active Brake Assist distance sensor regularly (> page 157).

If the distance sensor cover is dirty or icy, its functionality may be impaired.

Do not mount any attachments in front of the distance sensor, e.g. a crash guard, and do not paint or affix items to the sensor cover. Otherwise, the operation of the distance sensor and the operation of Active Brake Assist may be affected.

### Activating and deactivating Active Brake Assist



When you start the engine, Active Brake Assist is automatically activated.

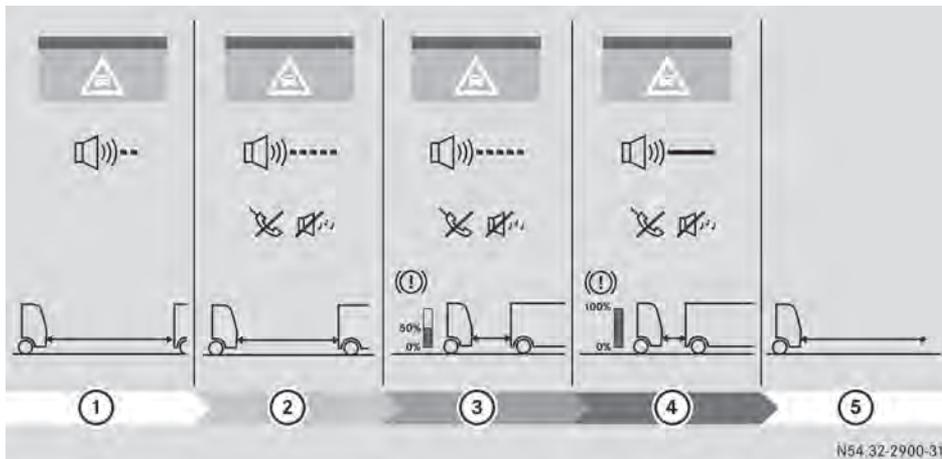
Active Brake Assist is deactivated automatically if:

- there is a malfunction
- ABS is deactivated or there is a malfunction in the brake system of the vehicle

- ▶ **To deactivate:** press the  button. When the  indicator lamp in the instrument cluster lights up, Active Brake Assist is deactivated.
- ▶ **To activate:** press the  button for approximately 1 second. When the  indicator lamp in the instrument cluster goes out, Active Brake Assist is activated.

## Collision warning and emergency braking

### Overview



- ① Distance control assistant preliminary warning (▷ page 127)
- ② Active Brake Assist warning
- ③ Active Brake Assist partial braking
- ④ Emergency stop (full brake application)
- ⑤ Emergency stop completed

If a collision warning appears in the on-board computer when the vehicle is in motion:

- ▶ Pay particular attention to the traffic situation.
- ▶ Depress the brake pedal.

The distance control assistant reacts and may warn you before Active Brake Assist if there is a risk of a collision.

If there is a risk of a collision with the vehicle in front and Active Brake Assist issues a warning, the audio device and/or hands-free system installed at the factory are automatically muted.

### Preliminary warning (distance control assistant)

The  symbol also appears in the yellow event window in the on-board computer. A double warning tone sounds.

### Warning (Active Brake Assist)

The  symbol appears in the red event window in the on-board computer. An intermittent warning tone sounds.

### Partial braking (Active Brake Assist)

The  symbol appears in the red event window in the on-board computer. An intermittent warning tone sounds. In addition, Active Brake Assist slows the vehicle with automatic partial braking. Active Brake Assist brakes the vehicle with around 50% of the vehicle's maximum braking power.

### Emergency braking (Active Brake Assist)

If you do not react to the collision warnings and partial brake application, Active Brake Assist automatically initiates emergency braking (full brake application) within the system limitations. During brake application, rapid flashing of the hazard warning lamps (emergency braking flashing) is activated to warn following traffic.

The  symbol appears in the red event window in the on-board computer. A continuous warning tone sounds. In addition, Active Brake Assist slows the vehicle with an automatic emergency braking manoeuvre (full brake application).

After emergency braking procedure has been performed, the **Emergency braking finished** message appears in the gray event window in the on-board computer. The hazard warning lamps automatically change to slow flashing.

After emergency braking to a standstill, the vehicle is held by the service brake for another 5 seconds to prevent it from rolling away.

If an emergency braking manoeuvre has been performed:

- ▶ Remove the vehicle from the area of danger as soon as possible while paying attention to the traffic situation.
- ▶ Stop the engine and apply the parking brake to prevent the vehicle from rolling away.
- ▶ Make sure that the vehicle is in proper operating order and that the load is secured properly.

You can interrupt emergency braking as follows:

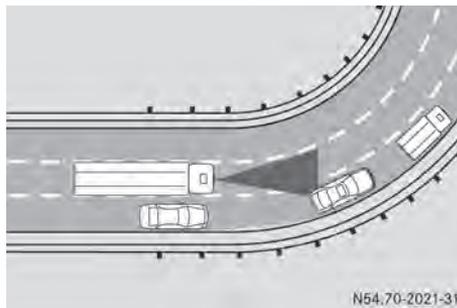
- ▶ Press the  button.

or

- ▶ Depress the accelerator pedal beyond the point of resistance (kickdown).

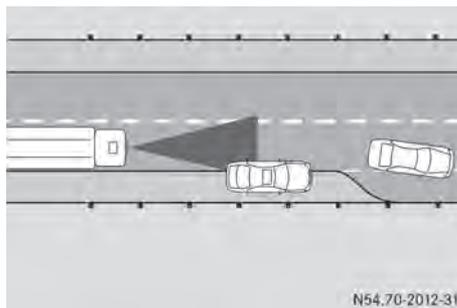
### Particular driving situations

#### Cornering, entering and exiting bends



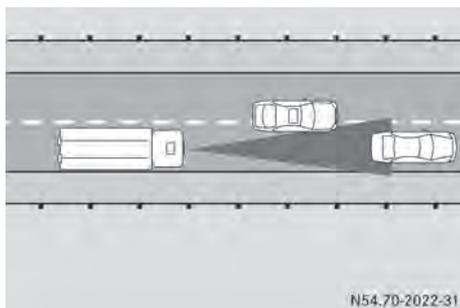
The ability of Active Brake Assist and the distance control assistant to detect vehicles on bends is limited. Active Brake Assist and the distance control assistant may unexpectedly issue warnings or brake your vehicle. The distance control assistant may also accelerate the vehicle unexpectedly.

#### Driving on a different line and stationary vehicles

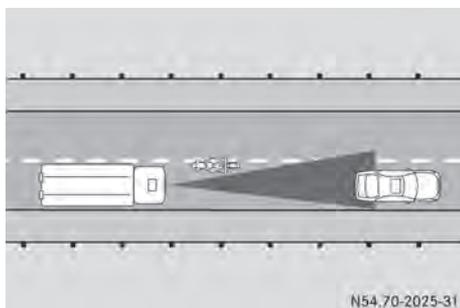


The ability of Active Brake Assist and the distance control assistant to detect vehicles driving on a different line or stationary vehicles is limited. Active Brake Assist and the distance control assistant may unexpectedly issue warnings or brake your vehicle. The distance control assistant may accelerate unexpectedly.

### Other vehicles changing lane

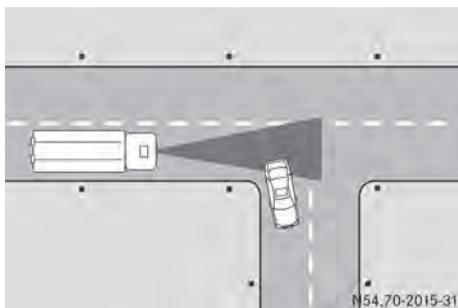


The ability of Active Brake Assist and the distance control assistant to detect vehicles pulling into your lane is limited. The distance to the vehicle in front entering your lane may then be too short. Active Brake Assist and the distance control assistant may unexpectedly issue warnings or brake your vehicle. The distance control assistant may also accelerate the vehicle unexpectedly.



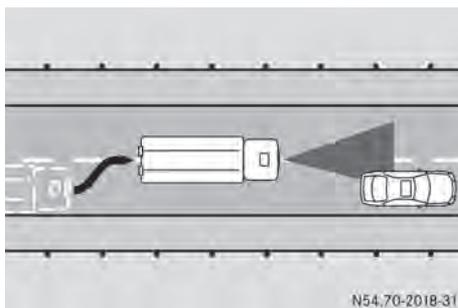
The ability of Active Brake Assist and the distance control assistant to detect vehicles pulling into your lane without maintaining a safe distance is limited. Only once vehicles are within the system's detection range will they be detected. The distance control assistant may accelerate unexpectedly. Brake the vehicle. This will increase the distance to the vehicle in front.

### Vehicles turning off



The ability of Active Brake Assist and the distance control assistant to detect vehicles turning off is limited. Active Brake Assist and the distance control assistant may unexpectedly issue warnings or brake your vehicle.

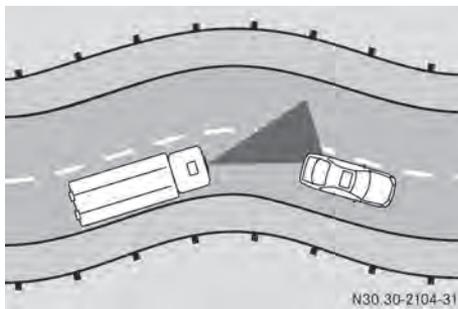
### Overtaking



When you are overtaking, Active Brake Assist and the distance control assistant may unexpectedly issue warnings or brake your vehicle if you:

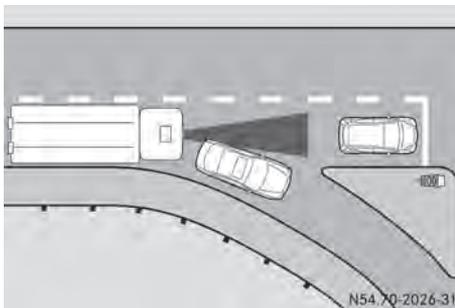
- drive too close to the vehicle in front and
- are in the same lane as the vehicle in front

### Winding stretches of road



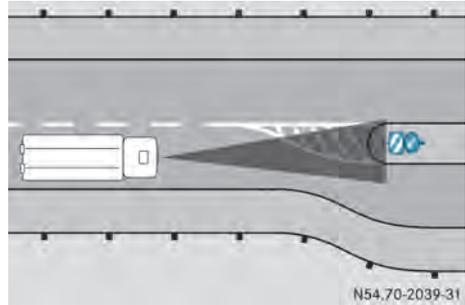
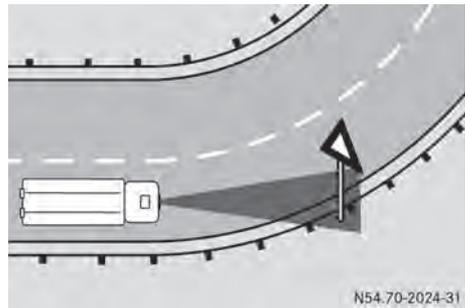
On winding stretches of road, Active Brake Assist and the distance control assistant cannot detect which lane the vehicle in front is driving in. Active Brake Assist and the distance control assistant may unexpectedly issue warnings or brake your vehicle. The distance control assistant may also accelerate the vehicle unexpectedly.

### Obstacles and stationary vehicles



Active Brake Assist and the distance control assistant cannot detect obstacles or stationary vehicles in front of the detected vehicle. Active Brake Assist and the distance control assistant may unexpectedly issue warnings or brake your vehicle. The distance control assistant may also accelerate the vehicle unexpectedly.

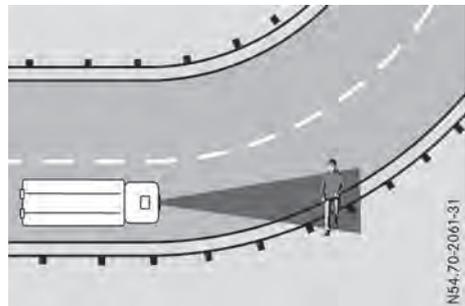
### Stationary objects



Active Brake Assist can also unexpectedly issue warnings and brake the vehicle if it detects stationary objects next to your lane, e.g.:

- vehicles which have broken down
- signs
- bridges
- traffic islands

### People



Active Brake Assist 4 may also unexpectedly issue a warning or brake for people at the roadside in a bend.

## Lane Keeping Assist

### Important safety notes

#### WARNING

Lane Keeping Assist cannot always clearly detect lane markings.

In such cases, Lane Keeping Assist can:

- give an unnecessary warning
- not give a warning

There is a risk of an accident.

Always pay particular attention to the traffic situation and keep within the lane, especially if Lane Keeping Assist alerts you.

#### WARNING

The Lane Keeping Assist warning does not return the vehicle to the original lane. There is a risk of an accident.

You should always steer, brake or accelerate yourself, in particular if warned by Lane Keeping Assist.

The system may be impaired or may not operate:

- if there is low visibility, e.g. due to insufficient road illumination or due to snow, rain, fog or heavy spray
- if there is glare, e.g. from oncoming traffic, the sun or reflection from other vehicles (e.g. if the road surface is wet)
- if the windshield is dirty, misted up, damaged or covered, for instance by a sticker, in the vicinity of the camera
- if no or several unclear lane markings are present for one lane, e.g. in a construction area
- if the lane markings are worn away, dark or covered up, e.g. by dirt or snow
- if the distance to the vehicle in front is too small and the lane markings thus cannot be detected
- if the lane markings change quickly, e.g. lanes branch off, cross one another or merge
- if the road is narrow and winding
- if there are highly variable shade conditions on the road surface

- if attachments, e.g. a snow plough, restrict the camera's view of the road lane markings
- after a significant change in load with the ignition switched on. Therefore, start the engine again after a significant change in load for Lane Keeping Assist to be available without any restrictions

If you fail to adapt your driving style or if you are inattentive, Lane Keeping Assist can neither reduce the risk of an accident nor override the laws of physics. Lane Keeping Assist cannot take the road and weather conditions into account, nor the prevailing traffic situation. Lane Keeping Assist is only an aid. You are responsible for the distance to the vehicle in front, for vehicle speed, braking in good time and remaining in lane. Always adapt your driving style to the prevailing road and weather conditions and maintain a sufficient, safe distance from other road users.

Make sure that the windshield is always kept clean and unobstructed in the area of the camera (▷ page 157). You can switch on the windshield wiper to clean the windshield, for example, or remove snow and ice from the windshield.

## Overview



Lane Keeping Assist button and display

- i** The lane markings are also displayed in the **Assistance** menu window in the  driving mode menu (▷ page 76).

The lane markings in the status area and in the **Assistance** menu window of the on-board computer show the status of Lane Keeping Assist in colour:

- black lane markings: Lane Keeping Assist is deactivated
- gray lane markings: Lane Keeping Assist is activated, but is not ready to issue warnings on the side of the vehicle in question
- white lane markings: Lane Keeping Assist is activated and ready to issue warnings on the side of the vehicle in question
- red lane markings: Lane Keeping Assist is activated and is issuing a warning on the side of the vehicle in question

## Functions and activation conditions

Lane Keeping Assist monitors the area in front of your vehicle with a camera that is on the base of the windshield. When Lane Keeping Assist is activated and it detects lane markings on the road surface, it warns you that you may be leaving your lane unintentionally.

Lane Keeping Assist is ready to issue warnings:

- from a speed of approximately 40 mph (60 km/h)
- when the lane markings appear in white in the on-board computer

When you drive over the lane marking unintentionally:

- the relevant lane marking is shown in red in the on-board computer
- the volume of the audio equipment and/or hands-free system is reduced and a warning tone sounds from the loudspeaker on the corresponding side of the vehicle

If the vehicle is not fully within the lane markings after a warning has been issued, no further warnings are possible.

Lane Keeping Assist does not issue a warning if:

- you have switched on the turn signals
- you explicitly and actively steer, brake or accelerate
- a driving safety system intervenes, e.g. Active Brake Assist, Stability Control Assist or the distance control assistant

The warnings are then suppressed for a certain time period.

Lane Keeping Assist will warn you when changing lane if a turn signal has been switched on for more than one minute.

## Deactivating or activating

When you start the engine, Lane Keeping Assist is automatically activated.

- ▶ Press the  button.

If Lane Keeping Assist is deactivated, the indicator lamp in the  button lights up. The lane marking appears black in the status area of the on-board computer and in the [Assistance](#) menu window in the on-board computer.

## Blind spot camera system

### Important safety notes

#### WARNING

If you operate information systems and communication equipment integrated in the vehicle when driving, you may be distracted from the traffic situation. You could also lose control of the vehicle. There is a risk of an accident.

Only operate this equipment when the traffic situation permits. If you are not sure that this is possible, park the vehicle paying attention to traffic conditions and operate the equipment when the vehicle is stationary.

Blind Spot Assist includes four cameras and one monitor. It substitutes the front mirror and also displays images of the immediate surroundings of the vehicle. Blind Spot Assist is only an aid. The cameras may show a distorted view of obstacles, show them incorrectly or not at all. Blind Spot Assist is not a substitute for your attention to the immediate surroundings.

You are responsible for safe maneuvering and parking. When maneuvering and parking, make sure that there are no persons, animals or objects in the maneuvering area.

You are always responsible for safety, and must always pay attention to your surroundings when parking and maneuvering. This applies to the areas behind, in front of and beside the vehicle. You could otherwise endanger yourself and others.

Under the following circumstances, the cameras will not function, or will function in a limited manner:

- if there is heavy rain, snow or fog
- if the area is lit by fluorescent light or LED lighting. The display may flicker.
- if the lenses of the camera are dirty or covered. Observe the notes on cleaning (▷ page 158).
- if the vehicle components in or to which the cameras are mounted are damaged. In this event, have the camera position and setting checked at a qualified specialist workshop immediately.

Pay particular attention in these situations. You could otherwise injure others during your maneuver or objects may damage the vehicle. If there is a malfunction, more specifically if the front camera fails, have the camera system repaired at a qualified specialist workshop immediately.

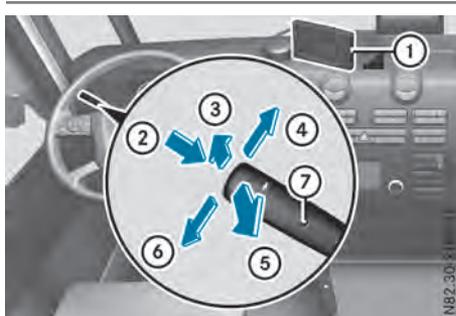
The position of the monitor and front camera as well as the factory settings of the monitor must not be changed. Otherwise, the function of Blind Spot Assist is not guaranteed.

The field of vision for the two blind spot cameras may be minimally adjusted. Each camera's housing may be adjusted to a degree if you employ considerable force. Daimler Trucks North America recommends that you have this work carried out at a qualified specialist workshop.

An overview of the cameras can be found in the notes on cleaning (▷ page 158).

Observe the information on the monitor in the operating instructions provided by the manufacturer.

## Display controls



- ① Monitor (see the manufacturer's operating instructions)
- ② To switch between automatic and manual mode
- ③ To display the reversing camera image
- ④ To display the right-side blind spot camera image
- ⑤ To display the front camera image
- ⑥ To display the left-side blind spot camera image
- ⑦ Indicator lamp for manual mode

Up to a speed of approximately 6 mph (10 km/h) monitor ① will always display the front camera image.

From a speed of approximately 6 mph (10 km/h) monitor ① displays the camera image of the selected display control – automatic or manual mode.

► Turn the key to the drive position in the ignition lock.

► **To select automatic mode:** when indicator lamp ⑦ lights up, push the control lever in the direction of arrow ②.

Indicator lamp ⑦ goes out and automatic mode is activated.

Monitor ① automatically displays the camera images best suited to the traffic situation and your traveling speed starting at a speed of approximately 6 mph (10 km/h).

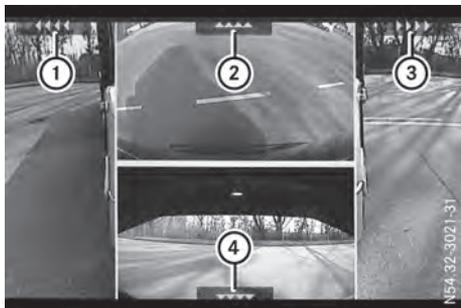
**i** The front camera image will no longer be displayed from a speed of approximately 22 mph (35 km/h).

► Push the control lever in the direction of arrow ③, ④, ⑤ or ⑥.

Monitor ① displays the corresponding camera image in full-screen mode for approximately five seconds.

- ▶ **To select manual mode:** when indicator lamp ⑦ goes out, push the control lever in the direction of arrow ②. Indicator lamp ⑦ lights up and manual mode is activated.
- ▶ When stationary or starting at a speed of approximately 6 mph (10 km/h), push the control lever in the direction of arrow ③, ④, ⑤ or ⑥. Monitor ① displays the corresponding camera image in full-screen mode.

## Monitor displays



Split-screen view including all camera images

- ① Symbol for left-side blind spot camera
- ② Symbol for front camera
- ③ Symbol for right-side blind spot camera
- ④ Symbol for reversing camera

The camera images are combined in a split-screen view or displayed on the monitor in full-screen mode. Symbols ① to ④ indicate the corresponding camera position.

Information on the monitor can be found in the manufacturer's operating instructions. The factory settings of the monitor must not be changed.

In accordance with your direction of travel, the monitor displays:

- all four camera images in split-screen view when the vehicle is stationary or when you brake
- the blind spot camera images as well as the reversing camera image when you reverse

- the front camera image when driving forwards up to a speed of approximately 6 mph (10 km/h)
- when driving forwards starting at a speed of approximately 6 mph (10 km/h) depending on the display control selected
  - the camera images relevant to your speed and the traffic situation, such as when you make a turn or during maneuvering. The front camera image will no longer be displayed from a speed of approximately 22 mph (35 km/h).
  - the selected camera image in full-screen mode during manual operation.

## Sideguard Assist

### General notes

Sideguard Assist monitors the area to the side of the vehicle with two radar sensors. The radar sensors are installed on the wing bracket in front of the rear axle. Sideguard Assist provides assistance when turning and changing lanes to the co-driver's side. A warning lamp in the warning element on the A-pillar informs you that an object has been detected in the monitored area. A warning tone also sounds if there is a risk of collision.

Sideguard Assist is not active while reversing.

### Important safety notes

#### WARNING

When detection is restricted, Sideguard Assist may issue a warning too late or not at all.

In particular, the detection of obstacles can be impaired in the following situations:

- dirty, icy or obscured sensors
- very wide lanes
- vehicles not driving in the middle of their lane
- barriers or other road boundaries

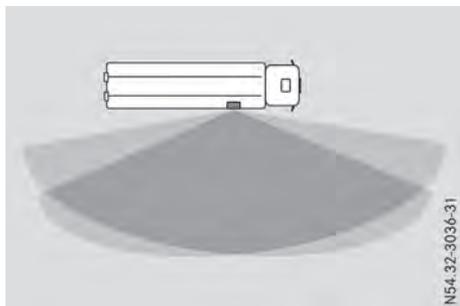
There is a risk of an accident.

Always pay careful attention to the traffic situation and maintain a safe distance at the side of the vehicle.

Sideguard Assist is only an aid. It may fail to detect some objects and is not a substitute for attentive driving. Always ensure that there is sufficient distance to the side for other road users, pedestrians and obstacles.

Make sure that the area on the co-driver's side beside the vehicle is free before making a turn.

### Monitoring range of the sensors



Monitoring range of the sensors

Between the vehicle and the monitoring range there is an angle of approximately  $6^\circ$ . Objects within this range are not detected.

Due to the nature of the system:

- warnings may be issued in error when driving close to crash barriers or similar solid boundaries
- warnings may be interrupted when you are driving alongside particularly long vehicles, such as trucks, for a prolonged time

Depending on the situation, Sideguard Assist may:

- issue a warning prematurely
- not issue a warning

Make sure that the radar sensor cover is free from dirt, ice or slush. The radar sensors must not be painted or covered, e.g. by stickers or films.

If Sideguard Assist is malfunctioning, the on-board computer displays a yellow event window.

Objects in the monitoring range are then not indicated.

Have the function of the radar sensors checked at a qualified specialist workshop following:

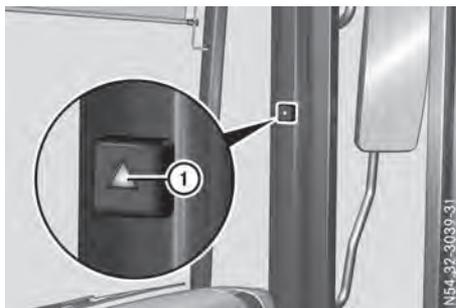
- a severe impact
- damage to the side trim

Sideguard Assist may otherwise not work properly.

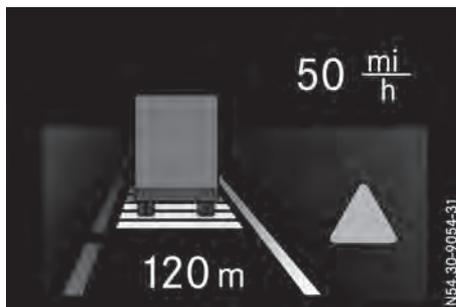
### Indicator and warning lamp

Sideguard Assist is active when you switch on the ignition.

The gray  indicator lamp is lit in the Assistance menu window of the on-board computer.

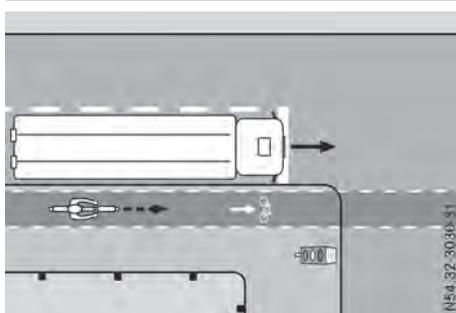


① Warning lamp in the A-pillar

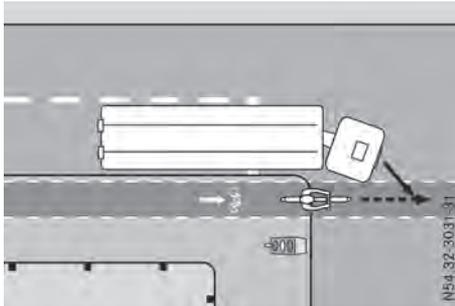


Example: assistance menu window

### Warning when turning right

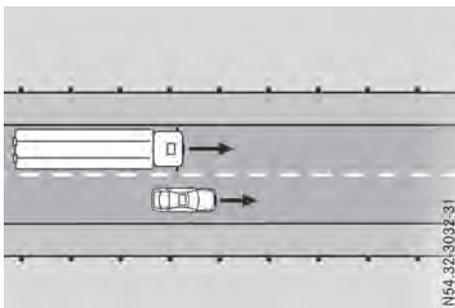


There is a moving object in the monitoring range of Sideguard Assist. The yellow warning lamp in the A-pillar lights up. In addition, the  indicator lamp lights up yellow in the **Assistance** menu window of the on-board computer.

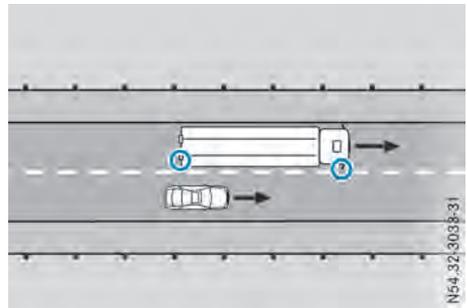


There is a moving object in the monitoring range of Sideguard Assist. Sideguard Assist recognizes when you steer or indicate to the right and set the vehicle in motion. There is a risk of collision. The red warning lamp in the A-pillar flashes for approximately 2 seconds. A warning tone also sounds. The red warning lamp in the A-pillar then lights up continuously while there is a risk of collision. In addition, the  indicator lamp lights up red in the **Assistance** menu window of the on-board computer.

### Warning when changing lanes



There is a moving object in the monitoring range of Sideguard Assist. The yellow warning lamp in the A-pillar lights up. In addition, the  indicator lamp lights up yellow in the **Assistance** menu window of the on-board computer.



When changing lane, a moving object is located in the danger zone. There is a risk of collision.

If you indicate or steer to the right, the red warning lamp in the A-pillar flashes for approximately 2 seconds. A warning tone also sounds. The red warning lamp in the A-pillar then lights up continuously while there is a

risk of collision. In addition, the  indicator lamp lights up red in the **Assistance** menu window of the on-board computer.

### Warning for stationary obstacles when turning right

Sideguard Assist warns you about stationary obstacles in the vehicle's range of movement up to a maximum speed of 22 mph (35 km/h). Sideguard Assist is only an aid. It may fail to detect some objects and is not a substitute for attentive driving. Always ensure that there is sufficient distance to the side for other road users, pedestrians and obstacles.

If there is a risk of collision with a stationary obstacle when turning right, the red warning lamp in the A-pillar flashes for approximately 2 seconds. A warning tone also sounds. The red warning lamp in the A-pillar then lights up continuously while there is a risk of collision.

In addition, the  indicator lamp lights up red in the **Assistance** menu window of the on-board computer.

### Deactivating

Sideguard Assist is automatically activated when you switch on the ignition.

You can deactivate Sideguard Assist via the systems menu window.

- ▶ Use the  or  button to scroll to  settings.
- ▶ Use the  or  button to scroll to the **Systems** menu window.
- ▶ Press the  button.
- ▶ Use the  or  button to select **Sideguard Assist**.
- ▶ Press the  button to deactivate.

The gray  indicator lamp lights up in the **Assistance** menu window of the on-board computer.

## Level control

### Important safety notes

#### WARNING

When you drive with the chassis lowered or raised, the vehicle's braking and driving characteristics can be significantly impaired. You could also exceed the permissible vehicle height if the chassis is raised. There is a risk of an accident.

Adjust the vehicle level before pulling away.

Observe the applicable legal requirements for each individual country for the permissible vehicle height.

You must raise/lower the chassis frame to pick up/set down demountable bodies.

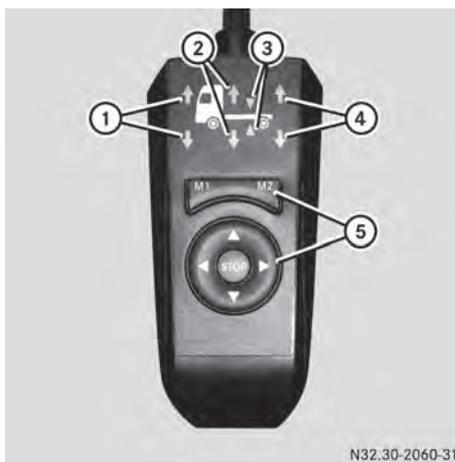
If you continue a journey after having changed the chassis height, it is necessary to lower/raise the chassis frame to driving level.

If the yellow  indicator lamp in the instrument cluster lights up, the chassis is not at driving level or the level control is malfunctioning. Observe the additional information in the event window.

When loading/unloading the vehicle with the ignition switched off, observe the information in the "Loading and unloading the vehicle when the ignition is switched off" section (▷ page 142).

### Activating/deactivating the control panel

- 1 When securing the control panel in the holder or behind the driver's seat, take care that the connecting cable does not:
  - become trapped in the driver's door or
  - become trapped by the driver's seat.



Example: control panel for fully air-sprung vehicles

- ① Preselection: to raise/lower the front axle
- ② Preselection: to raise/lower the entire vehicle
- ③ Preselection: to set the driving level
- ④ Preselection: to raise/lower the rear axle
- ⑤ Buttons
-  To activate the control panel, make a preselection for the front/rear axle, entire vehicle or driving level

-  To activate the control panel, make a preselection for the front/rear axle, entire vehicle or driving level
-  To activate the control panel, lower the chassis, set the driving level
-  To activate the control panel, raise the chassis, set the driving level
-  To activate the control panel, to end raising or lowering operation
-  Press briefly: to call up memory position M1 or M2 for chassis height  
Press and hold: to store memory position M1 or M2 for chassis height

You can operate the level control when the vehicle is stationary or when the vehicle is in motion up to approximately 19 mph (30 km/h).

Depending on your vehicle's equipment, you control the function of the level control system using:

- the control panel on the driver's seat
- the on-board computer (▷ page 78)
- ▶ Apply the parking brake.
- ▶ Turn the key to the drive position in the ignition lock.  
The level control automatically adjusts the chassis frame to the previously stored height.
- ▶ If the reservoir pressure in the compressed-air system is too low, leave the engine running.  
The compressed-air system is charged.
- ▶ Take the control panel out of the holder.

### Activating the control panel

- ▶ Control panel on the outside of the driver's seat: briefly press the , , ,  or  button.

### Deactivating the control panel

- ▶ Wait for approximately 60 seconds; do not press the button.
- or
- ▶ Drive at a speed above approximately 19 mph (30 km/h).  
The control panel is automatically deactivated.

## Raising/lowering the chassis

### WARNING

When the vehicle is being lowered, people could become trapped if their limbs are between the vehicle body and the wheels or underneath the vehicle. There is a risk of injury.

Make sure no one is underneath the vehicle or in the immediate vicinity of the wheel arches when the vehicle is being lowered.

- ▶ Press the  or  button to select front axle , entire vehicle  or rear axle .
- The LEDs for the selected preselection light up.
- ▶ Press the  button to lower the chassis or the  button to raise it.  
If the chassis is not at driving level, the  indicator lamp in the instrument cluster lights up. Additionally, a yellow event window appears in the on-board computer with  or  and **Set driving level**.
- ▶ Press the  button to interrupt/end the raising or lowering operation.

## Storing/calling up the chassis height

- ▶ **To store:** raise/lower the chassis to the desired height.
- ▶ Press the  button for approximately 2 seconds for memory position M1 or M2.  
The current chassis frame height is stored under the corresponding  button.
- ▶ **To call up:** briefly press the  button for memory position M1 or M2.  
The chassis will be raised/lowered automatically to the stored height.  
A yellow event window appears in the on-board computer with  or  and **Set driving level**.
- ▶ Press the  button to interrupt/end the raising or lowering operation.

### Setting the driving level



Example: STOP and driving level button

#### ► To use the button on the instrument panel: press the button.

The chassis is raised or lowered automatically to the driving level. When the chassis is at driving level, the  indicator lamp in the instrument cluster goes out.

When the raised driving level is selected (▷ page 142), the chassis is raised/lowered to the driving level automatically.

#### ► Press the button to interrupt/end the raising or lowering operation.

#### ► To use the control panel: press the or button to select driving level preselection ③. The LEDs for driving level preselection ③ light up.

#### ► Briefly press the or button. The chassis is raised or lowered automatically to the driving level. When the chassis is at driving level, the indicator lamp in the instrument cluster goes out.

#### ► Press the button to interrupt/end the raising or lowering operation.

### Loading and unloading the vehicle when the ignition is switched off

**!** Before removing swap bodies, lower the chassis fully. Otherwise, the chassis frame will spring up suddenly when the body is removed. Damage to the shock absorbers is possible as a result.

Store a constant chassis height for loading and unloading the vehicle.

- If required, raise/lower the chassis to the desired height.
- Run the engine until the pressure regulator cuts out.
- Press the  button on the control panel or the  button on the instrument panel.
- Switch off the engine.
- Remove the key from the ignition lock.
- Release the  button on the control panel or the  button on the instrument panel. If there is sufficient reservoir pressure in the compressed-air system, the height of the chassis frame is kept constant for approximately 4 to 5 hours.

### Raised vehicle level (vehicles for large-capacity transport)



To improve ride comfort, raise the chassis frame while the vehicle is in motion.

#### ► To raise the chassis to the raised driving level: press the upper section of the button.

The indicator lamp in the  button and the  indicator lamp in the instrument cluster light up.

#### ► To lower the chassis to the normal driving level: press the upper section of the button again.

The indicator lamp in the  button goes out. When the chassis is lowered to the normal driving level, the  indicator lamp in the instrument cluster goes out.

## Chassis-lowering feature on the front axle

### General notes

The chassis-lowering feature on the front axle makes entering and exiting the vehicle easier. The chassis-lowering feature on the front axle is only available when:

- the vehicle is stationary
- the engine is running
- there is sufficient reservoir pressure in the compressed-air system

If you open the driver's or co-driver's door, the chassis is lowered on the front axle.

The chassis is raised to the driving level automatically if you:

- cancel the lowering procedure
- close the driver's or co-driver's door
- set the vehicle in motion
- switch off the engine

### Activating or deactivating the chassis-lowering feature on the front axle



- ▶ **To activate:** press the upper section of the button. Indicator lamp in the button lights up.
- ▶ **To deactivate:** press the lower section of the button. The indicator lamp in the button goes out.

### Canceling the chassis-lowering procedure on the front axle

You can cancel the lowering procedure and restore the driving level using the STOP and driving level buttons on the instrument panel.

- ▶ Press the or button. The chassis frame is raised to the previously set driving level.

## Driving tips

### General notes on driving

#### WARNING

If you switch off the ignition while driving, safety-relevant functions are only available with limitations, or not at all. This can affect the power steering and the brake boosting effect, for example. You will require considerably more effort to steer and brake. There is a risk of an accident.

Do not switch off the ignition while driving.

#### WARNING

The parking brake may not be sufficient to secure the vehicle on uphill and downhill gradients. A loaded vehicle or a vehicle with a trailer/semitrailer may roll away. There is a risk of an accident.

In the control position, check whether the braking force of the parking brake alone is sufficient to hold the complete vehicle. Secure the tractor vehicle and trailer/semitrailer with the parking brake and also with chocks as standard.

#### WARNING

If you distribute the load unevenly in the vehicle, the handling as well as the steering and braking characteristics are severely affected. There is a risk of an accident.

Distribute the load evenly in the vehicle. Secure the load to prevent it from slipping.

The vehicle's driving, braking and steering characteristics vary with the type, weight and centre of gravity of the load.

## Driving off-road

### Important safety notes

#### WARNING

When driving off-road, your body is subject to forces from all directions, due to the uneven surface. You could be thrown from your seat, for instance. There is a risk of injury.

Always wear a seat belt, even when driving off-road.

**!** If you drive off-road the vehicle could be damaged by obstacles.

Objects could damage the following parts, for example:

- Axles
- Propeller shafts
- Fuel tank
- Compressed-air reservoir
- Engine
- Transmission

Therefore, always drive slowly when off-road. If you must drive over obstacles, have the co-driver instruct you. Always be aware of the ground clearance of the vehicle. If possible, avoid obstacles.

**!** When driving the vehicle on rough terrain, ensure that the drive wheels always have sufficient traction. Avoid wheelspin of the drive wheels. You could otherwise damage the differential gear system.

Driving off-road increases the possibility of damage to the vehicle, which may cause assemblies or systems to fail. Adapt your driving style to the conditions of the terrain. Drive carefully. Have vehicle damage rectified immediately at a qualified specialist workshop.

When driving off-road, substances such as dirt, sand, mud and water or water mixed with oil may get into the brakes. This may lead to a reduction in braking performance or total brake failure as a result of increased wear. The braking characteristics will vary depending on the substances that get into the brakes. Clean the brakes after driving off-road. If you notice grinding noises or a reduction in braking performance, have the brake system checked at a qualified specialist workshop immediately.

Adapt your driving style to suit the altered braking characteristics.

### Checklist before driving off-road

- ▶ Check the fuel and DEF supplies (▷ page 69) and refill (▷ page 151).
- ▶ **Engine:** check the oil level (▷ page 80) and refill the oil (▷ page 163).  
Before driving up or down steep gradients, fill the oil to the maximum level.
- i** If you drive up or down steep gradients, the  symbol may appear in an event window on the on-board computer. The engine operating safety is not put at risk if you have filled the engine oil to the maximum level before the journey.
- ▶ **Automatic transmission:** check the oil level and refill the oil (▷ page 164).  
Before driving up or down steep gradients, fill the oil to the maximum level.
- ▶ **Vehicle tool kit:** check that the jack is working (▷ page 171).
- ▶ Make sure that a wheel wrench, wooden underlay for the jack, a robust tow cable and a folding spade are carried in the vehicle.
- ▶ **Tyres and wheels:** check the tread depth (▷ page 193) and tire pressure (▷ page 195).
- ▶ **Driver's seat:** block horizontal springing.
- ▶ **Mud flaps:** fold the mud flaps forward and attach them.

### Rules for off-road driving

#### WARNING

If you drive over obstacles or in ruts, the steering wheel may jerk out of your grip, causing injury to your hands.

Always hold the steering wheel firmly with both hands. When driving over obstacles, you must expect steering forces to increase briefly and suddenly.

On gradients and inclines, always follow the line of fall and avoid changing gear. Drive up gradients without stopping until you are at the top of the hill. If your vehicle is unable to cope

with the gradient, stop. Shift into reverse gear and allow the vehicle to slowly roll backwards. Vehicles with level control: leave the chassis frame set to driving level (▷ page 141). Raise the chassis frame only when necessary and always for a short time only, e.g. to drive over a steep hilltop. When you raise the chassis frame, traction is impaired.

- ▶ Securely stow away all loose objects.
- ▶ Securely fasten the load.
- ▶ Secure bulk material (e.g. sand or gravel) with slip-on walls or covers to prevent it slipping.
- ▶ Secure add-on and attached equipment, such as tipper bodies or loading cranes, against inadvertent activation and movement. Observe the operating instructions given by the body and equipment manufacturer.
- ▶ Close the side windows (▷ page 43).
- ▶ Raise the chassis frame (▷ page 141).
- ▶ Deactivate Stability Control Assist (▷ page 117).
- ▶ Deactivate ABS (▷ page 110).
- ▶ Always keep the engine running and in gear while driving.
- ▶ Drive slowly and smoothly. It may often be necessary to drive at walking pace.
- ▶ Make sure that the wheels remain in contact with the ground.
- ▶ Drive with extreme care over unknown terrain where you can only see for a short distance. As a precaution, get out of the vehicle to take a look at the route to be taken first.
- ▶ Watch out for obstacles such as rocks, holes, tree stumps and ruts.
- ▶ If possible, always drive over obstacles with the wheels of one side of the vehicle. This means damage to the vehicle is avoided.

## Driving on inclines

### WARNING

If you drive on a steep incline at an angle or turn when driving on an incline, the vehicle could slip sideways, tip and rollover. There is a risk of an accident.

Always drive on a steep incline in the line of fall (straight up or down) and do not turn the vehicle.

Do not shift the transmission into neutral on downhill gradients.

- ▶ If the vehicle is being driven up or down a slope and begins to tilt, steer the vehicle into the line of the fall immediately. Only drive over embankments and on slopes along the line of fall.
- ▶ Only brake once the vehicle is on the line of fall.
- ▶ Slowly depress the brake pedal if the engine's braking effect is insufficient when driving downhill.

## Checklist after driving off-road

 Trapped parts of plants and branches could damage the following component parts:

- Fuel lines
- Brake hoses
- Axle joints
- Drive shafts
- ▶ Activate Stability Control Assist (▷ page 117).
- ▶ Test the brakes.
- ▶ Check the headlamps and tail lamps for damage.
- ▶ Check for damage to the tires.
- ▶ Replace buckled or damaged wheels.
- ▶ Replace missing valve caps.
- ▶ Check and adjust the tire pressure (▷ page 195).
- ▶ Check whether parts of plants or branches have become trapped.
- ▶ Check the entire vehicle underside, brakes, steering, chassis and exhaust system for damage.
- ▶ Check the engine oil level (▷ page 80).
- ▶ Fold down the mud flaps.
- ▶ Observe the notes on cleaning after driving off-road or on construction sites.

## Cleaning after driving off-road or on construction sites

**!** Only direct the compressed-air, steam or water jet towards the radiator surface in a vertical direction. Ensure that the radiator fins are not damaged. Remove any dirt from the radiator fins. Damaged or dirty radiator fins can cause the engine to overheat. If there is a loss of coolant or damage to the cooling and heating system, have it checked at a qualified specialist workshop.

Foreign bodies that have become trapped can be expelled during the journey, e.g. stones in the tire tread or between the tires (twin tires). This could cause other road users to be injured or vehicles – especially the windshields – to be damaged.

Dirt and mud on the tires and on the road surface reduce road grip, particularly if the road surface is wet. This could cause your vehicle to start to skid. Always clean your vehicle carefully after every journey off-road or on a construction site and before journeys on public roads.

Check the tires for foreign bodies that have become trapped after every journey off-road or on a construction site and before journeys on public roads. Remove any trapped foreign bodies.

Clean the following vehicle parts after a journey off-road or on a building site:

- Lighting system
  - Side windows and windshield
  - Exterior mirrors
  - Steps
  - Door sills
  - Grab handles
  - Wheels and tires
  - Wheel housing and mudguard
  - Steering
  - Axles
  - Brakes
  - Spring elements
  - Chassis
  - License plate
  - Engine
  - Refrigeration unit
- ▶ Clean wheels, tires and wheel housings and remove foreign objects, e.g. stones.

After operation in mud, sand, water or after exposure to similar dirty conditions:

- ▶ Clean the brake discs, brake linings, wheels and axle joints and check them for damage.
- ▶ Lubricate the axle joints.
- ▶ Test the brakes while paying attention to the road and traffic conditions.

## Economical and environmentally-aware driving

### General notes

Fuel consumption depends on:

- the vehicle version
- the operating conditions
- the fuel type in use
- maintenance
- driving resistance
- your driving style

### Vehicle version

The following components affect fuel consumption:

- tires, e.g. tire pressure, tire condition, tire size
- add-on equipment and vehicle cab version, e.g. open platform, box-type body, platform with tarpaulin
- drive trains and the number of axles
- ratio of the drive assemblies, e.g. transmission and axle reduction ratio
- additional equipment, e.g. air-conditioning system, auxiliary heating, power take-offs

### Operating conditions

The following operating conditions affect fuel consumption:

- topography, e.g. driving on level routes or in mountainous terrain
- outside temperature and weather conditions
- operating conditions, e.g. operation on construction sites, long distance or short distance driving
- gross vehicle weight

## Maintenance

The fuel consumption and assembly wear depend on regular maintenance. Regular maintenance of the vehicle increases road safety and lowers fuel consumption. Keep to the maintenance intervals. Always have maintenance work carried out at a qualified specialist workshop.

## Fuel type

The fuel grade also affects fuel consumption. Use of lower fuel grades and/or non-approved fuel additives will increase fuel consumption. Ensure that you refuel with the appropriate fuel grade (▷ page 202).

## Driving resistance

### General notes

The principle forms of driving resistance are incline, rolling and aerodynamic resistance. Driving resistance changes depending on, for example, vehicle weight and vehicle speed. Remember that driving resistance increases with vehicle speed.

### Rolling resistance

Rolling resistance and therefore fuel consumption are affected by the following factors:

- tire size and tire type
- tire pressure, e.g. correctly set tire pressure reduces fuel consumption  
Check the tire pressure at regular intervals (▷ page 195)
- tire type, e.g. summer or winter tires, single or twin tires
- tire tread and tire width, e.g. coarse tire treads such as those on winter tires increase fuel consumption
- load distribution, e.g. even load distribution increases not only driving safety, but also tire life

Observe the notes on the permissible wheel and axle loads (▷ page 116) and the data on the vehicle identification plate (▷ page 197).

- road and weather conditions, e.g. wet or soft road surfaces (snow or rain) increase fuel consumption

## Aerodynamics

Air turbulence increases aerodynamic resistance and therefore fuel consumption. Air turbulence occurs in particular at additionally installed equipment, e.g. auxiliary headlamps.

- With open loads, arrange the load so that there are no gaps. Cover the load with a tarpaulin.
- Lash down all tarpaulins on the tractor/trailer combination securely.

## Fuel-saving driving styles

### ⓘ Environmental note

Only switch on the air-conditioning system when necessary. Fuel consumption increases when the air-conditioning system is switched on.

You can keep fuel consumption at low levels with your driving style:

- Do not depress the accelerator when starting the engine.
- Avoid frequent cold starts.
- Do not warm up the engine while stationary.
- Switch off the engine when waiting in stationary traffic.
- Avoid frequent and heavy acceleration.
- Avoid adaptive braking by driving with foresight.
- Drive in an even and considered manner. Use cruise control (▷ page 122) and the distance control assistant driving systems (▷ page 124).
- Take care to keep to an economical engine speed (green area of the rev counter) (▷ page 68).
- Avoid speed peaks.
- Avoid frequent speed changes, in particular at high speeds.
- Avoid frequent gear changes.

## Diesel particle filter

## Important safety notes

### ⚠ WARNING

Flammable material such as leaves, grass or twigs may ignite if they come into contact

with hot parts of the exhaust system or exhaust gas flow. There is a risk of fire.

Park the vehicle so that no flammable materials come into contact with parts of the vehicle which are hot. Take particular care not to park on dry grassland or harvested grain fields.

**!** During automatic and manual regeneration, extremely hot exhaust gases escape from the exhaust pipe. Maintain a distance of at least one meter to other objects, e.g. parked vehicles, in order to avoid damage to property.

For vehicles with a lower exhaust pipe and level control, ensure that the vehicle is not parked with a lowered chassis. Too little clearance may otherwise lead to damage to the floor covering.

If you drive the vehicle predominantly over short distances or with low loads, automatic regeneration may not be sufficient.

If too many particles collect in the diesel particle filter, the  indicator lamp in the instrument cluster lights up. The on-board computer then instructs you with a yellow event window to start manual regeneration (▷ page 86). Manual regeneration lasts approximately 30 minutes up to a maximum of 60 minutes (▷ page 149).

If you do not observe the yellow event windows and their instructions, you risk:

- a reduction in engine performance
- having to replace the diesel particle filter (▷ page 97)

### Automatic regeneration

When the  indicator lamp lights up in the instrument cluster, automatic regeneration of the diesel particle filter is in progress.

An automatic regeneration can begin either while the vehicle is in motion or stationary.

Automatic regeneration only begins when all operating conditions have been fulfilled, such as sufficiently high engine oil and exhaust temperatures, for example. If an operating condition is no longer fulfilled while regeneration is in process, the  indicator lamp goes out and the regeneration is interrupted. When all operating conditions are fulfilled again, the regeneration starts again automatically. There-

fore, avoid interruptions in driving as long as the  indicator lamp is lit.

- i** The engine noise and the engine idling speed may change while regeneration is in process.

### Regeneration block

If you need to avoid the increased emission temperatures that occur during regeneration, you can disable regeneration, for example, when you are:

- entering a hazardous area
- performing work which causes intense build-up of dirt on the vehicle, involving dry or flammable materials

Automatic and manual regeneration can then no longer be started and any current regeneration will be interrupted.



- ▶ **To activate/deactivate:** press the lower section of the  button.

When the indicator lamp in the  button lights up, regeneration is blocked.

Only switch on the regeneration block for as long as the hazardous condition prevails. If you have switched on the regeneration block, regeneration remains blocked even after starting the engine again. This can result in a large number of particles quickly collecting in the diesel particle filter. In this case, the on-board computer informs you that the regeneration block is still active by means of the  **Regeneration disabled** message in a gray event window.

## Starting manual regeneration



Manual regeneration lasts approximately 30 minutes up to a maximum of 60 minutes.

You can only start the manual regeneration if:

- the on-board computer has prompted you to do so with corresponding event windows.
  - the regeneration block is not active.
- ▶ Stop the vehicle, paying attention to road and traffic conditions, and keep the engine running.

While doing so, maintain a distance of at least 40 in (1 meter) to other vehicles, other objects and all flammable materials.

- ▶ Apply the parking brake.
- ▶ Shift into neutral.
- ▶ Remove your foot from the accelerator.
- ▶ For approximately 3 seconds, press the upper section of the  button.

Manual regeneration only begins if:

- the engine oil and exhaust temperatures are sufficiently high
- DEF is not frozen
- the system is functioning trouble-free

The  indicator lamp lights up in the instrument cluster and the engine speed is increased.

When regeneration is finished:

- the  indicator lamp in the instrument cluster goes out
- the engine speed is reduced to idling speed

Regeneration is automatically interrupted if you:

- shift the automatic transmission to position **D** or **R**
- release the parking brake
- switch on the regeneration block

The interruption reduces the engine speed to idling speed.

- i** During regeneration, the engine noise may change.
- i** If the on-board computer prompts you to carry out manual regeneration when the outside temperature is low, start regeneration before parking the vehicle.

If you park the vehicle without regenerating, you can only begin manual regeneration after the engine warming-up phase.

Start the manual regeneration after a thawing time of up to 60 minutes if:

- DEF freezes
- you have parked the vehicle for an extended period without performing regeneration

## Replacing the filter

### WARNING

Direct contact or inhalation of soot particles is hazardous to health. There is a risk of injury.

Have the diesel particle filter replaced at a qualified specialist workshop.

If, in an exceptional circumstance, you have to replace the diesel particle filter yourself, observe the corresponding workshop information and work safety and accident prevention regulations. Wear gloves and a dust protection mask. Pack and seal the removed diesel particle filter in the original packaging. Label the removed diesel particle filter and under no circumstances leave it unpacked in the open.

### Fuel consumption

Fuel consumption depends on:

- the vehicle version
- the operating conditions
- the fuel type in use
- maintenance
- driving resistance
- your driving style

For these reasons, exact figures about any individual vehicle's fuel consumption cannot be provided.

Information and notes on how to keep fuel consumption to a minimum can be found in the "Economical and environmentally-aware driving" section (▷ page 146).

**i** The on-board computer shows information on the average fuel consumption in the trip data menu  (▷ page 75).

### DEF consumption

DEF consumption is approximately 2 to 4 % of fuel consumption.

### Engine oil consumption

After running-in the engine, oil consumption may reach 0.2 % of the vehicle's fuel consumption.

Increased distance covered and more arduous operating conditions could result in vehicles exceeding this value.

### Limiting the speed

#### WARNING

If the vehicle combination swerves, you could lose control of the vehicle combination. The vehicle combination may even overturn. There is a risk of an accident.

On no account should you attempt to straighten up the vehicle combination by increasing the speed. Reduce your speed and do not countersteer. Brake if necessary.

On vehicles with a speed limiter, the maximum speed of the vehicle is limited according to national legal requirements, e.g. to approximately 56 mph (90 km/h).

The engine speed is automatically limited when the restricted top speed is reached. Take this into account when overtaking.

### Warning tone

**!** If the acoustic warning sounds and the red event window with the  symbol appears in the on-board computer, the operating safety of the engine is jeopardized.

Do not start the vehicle or stop the vehicle immediately paying attention to the traffic conditions. You could otherwise damage the engine.

A warning tone sounds if:

- the driver's door is opened with the low-beam headlamps switched on and with the key in the ignition lock in the radio position
- the driver's door is opened with the parking lamps switched on and the ignition off
- the immobilizer is activated
- you do not depress the brake pedal when the hill holder is activated and the vehicle is stationary
- the vehicle is stationary for approximately 9 minutes with the engine running and a gear selected
- you select the reverse gear
- you turn the ignition lock to the  position or remove the key when the frequent-stop brake is activated and the parking brake is released
- you exceed the maximum permissible engine speed

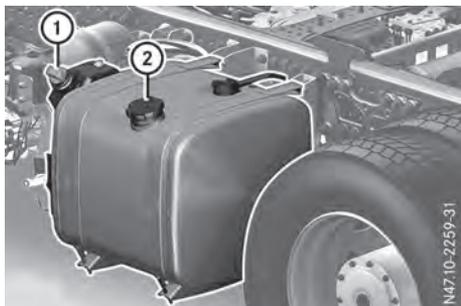
- the speed or engine speed is too high when making a gear change

A warning tone sounds in addition to the event window appearing in the display of the on-board computer if:

- the distance control assistant warns you that there is a risk of collision with the vehicle in front
- Active Brake Assist is activated and there is a risk of collision
- the coolant level is too low or the permissible coolant temperature (approximately 234 °F) (112 °C) is exceeded. The operating safety of the engine is jeopardized by this
- you are driving faster than 25 mph (40 km/h) with shunting level activated
- the instrument cluster and/or the on-board computer is malfunctioning. Important operating information, maintenance information or indicator and warning lamps can no longer be displayed
- a door is opened and the parking brake is not engaged

## Refueling

### DEF tank



Fuel/DEF tank (example: vehicle with 2 axles)

- ① DEF tank
- ② Fuel tank

## Fuel

### Important safety notes

#### WARNING

Fuels are toxic and harmful to health. There is a risk of injury.

You must avoid fuels coming into contact with skin, eyes and clothes or being swallowed.

Do not inhale the fuel vapors. Keep children away from fuels.

Keep doors and windows closed during the refueling process.

If you or others come into contact with fuel, observe the following points:

- Immediately rinse the fuel off your skin with soap and water.
- If you get fuel into your eyes, immediately rinse your eyes thoroughly with clean water. Seek medical attention immediately.
- Seek medical attention immediately if fuel has been swallowed. Do not induce vomiting.
- Immediately change out of clothing which has come into contact with fuel.

#### WARNING

Fuel is highly flammable. Improper handling of fuel creates a risk of fire and explosion.

Avoid fire, open flames, smoking and creating sparks under all circumstances. Switch off the ignition and auxiliary heating before carrying out work to the fuel system. Always wear protective gloves.

#### WARNING

If you mix diesel fuel with gasoline, the flash point is lower than that of pure diesel fuel. When the engine is running, exhaust system components could overheat without being noticed. There is a risk of fire.

Never refuel with gasoline. Never mix gasoline with diesel fuel.

- ❗ Only refuel using commercially available, sulfur-free diesel fuel that conforms to the European standard EN 590 as of 2010, et seq. (max. 0.001% sulfur by weight).

The following fuel types are not permitted:

- sulfurous fuel with a sulfur content greater than 0.001% by weight
- marine diesel fuel
- aviation turbine fuel
- heating oils
- FAME fatty acid methyl ester (bio-diesel fuel) by volume

These fuel types cause irreversible damage to the engine and exhaust gas aftertreatment, as well as also significantly reducing the expected service life.

- ❗ Do not use gasoline to refuel vehicles with a diesel engine. Even small amounts of gasoline will cause damage to the fuel system and engine.
- ❗ Do not switch on the ignition if you accidentally refuel with the wrong fuel. Otherwise, the fuel will enter the fuel lines. Notify a qualified specialist workshop and have the fuel tank and fuel lines drained completely.
- ❗ Do not mix any special fuel additives with the diesel fuel.

Fuel additives can result in:

- Malfunctions
- Damage to the catalytic converter
- Engine damage



#### Environmental note

If fuels are handled improperly, they pose a danger to persons and the environment. Do not allow fuels to run into the sewage system, the surface waters, the ground water or into the ground.

**!** Use truck fuel pump nozzles to refuel. If you use a passenger vehicle fuel pump nozzle, the flap in the filler neck could be damaged.

If you have to use a passenger vehicle fuel pump nozzle, insert it into the filler neck so that only one of the pump nozzle lugs rest on the edge of the filler neck.

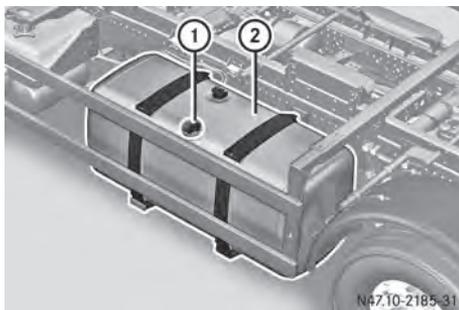
If a passenger vehicle fuel pump nozzle is inserted too far, this may result in a lug getting caught on the flap in the filler neck. To release the fuel pump nozzle in such a case, twist or tip it before attempting to remove the fuel pump nozzle.

You will find further information on fuel in the "Service products" section (▷ page 202).

### Before filling the tank

**!** Filter the fuel before transferring it to the vehicle if you are refueling the vehicle from barrels or containers.

This will prevent malfunctions in the fuel system due to contaminated fuel.



Example: fuel tank

- ① Cap
- ② Fuel tank

- ▶ Switch off the engine.
- ▶ Apply the parking brake.
- ▶ Switch off the auxiliary heating system (▷ page 63).
- ▶ Remove the key from the ignition lock.
- ▶ Observe the fuel grade (▷ page 202).

**i** Regularly check the fuel prefilter with heated water separator for condensation (▷ page 176).

### Diesel Exhaust Fluid (DEF)

#### Important safety notes

**!** Make sure that diesel fuel does not get into the DEF tank. Otherwise, you could damage the emissions control system.

**!** Only use DEF in accordance with DIN 70070/ISO 22241. Do not use any additives.

If DEF comes into contact with painted or aluminum surfaces when filling the tank, rinse the affected area immediately with plenty of water.

**!** Do not mix any additives with DEF. Do not dilute DEF with tap water. This could result in malfunctioning of the emissions control system.

**!** Always close the DEF tank correctly. Impurities could otherwise get into the emissions control system and damage it.

**!** Make sure that you do not overfill the DEF tank. Otherwise, the DEF tank could be damaged at very low temperatures.

When opening the DEF tank, small amounts of ammonia vapors can escape.

Ammonia vapors have a pungent smell and are particularly irritating to:

- Skin
- Mucous membranes
- Eyes

The vapors may cause a burning sensation in the eyes, nose and throat as well as irritation of the throat and watering eyes.

Avoid inhaling ammonia vapors. Only fill the DEF tank in well-ventilated areas.

DEF should not come into contact with skin, eyes or clothing, and should not be swallowed. Keep DEF out of the reach of children.

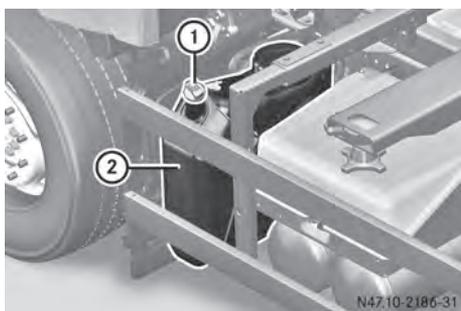
If you come into contact with DEF, observe the following:

- Immediately wash DEF from your skin with water and soap.
- If DEF comes into contact with your eyes, rinse your eyes with clean water immediately. Consult a doctor without delay.
- If you have swallowed DEF, immediately rinse your mouth with water and drink plenty of water. Consult a doctor without delay.
- Immediately change out of clothing which has come into contact with DEF.

DEF is not refilled as part of the maintenance work. Therefore, refill the tank regularly during vehicle operation or at the latest when the first event message is displayed in the on-board computer.

You can find further information on DEF under "Service products" (> page 203).

### Before filling the tank



DEF tank (example: single tank)

You can recognize DEF tank (2) by blue cap (1). If DEF tank (2) still contains sufficient DEF, pressure compensation may result when unscrewing cap (1). DEF may spill out as a result. Therefore, remove DEF tank cap (1) carefully from DEF tank (2). If DEF spills out, immediately wash the affected area with plenty of water.

A special tank filler neck prevents DEF tank (2) from mistakenly being filled with diesel fuel.

- ▶ Switch off the engine.
- ▶ Apply the parking brake.
- ▶ Switch off the auxiliary heating system (> page 63).

Always fill the tank with at least 1.4 US gal (5 Liter) as adding smaller amounts could result in malfunctions.

## Winter operation

### Winter driving

#### Before the journey

**!** At very low outside temperatures, make sure that the engine oil added is of an appropriate SAE classification. Using engine oils that are not suitable for very low outside temperatures may result in engine damage.

Before every journey, remove accumulated snow and ice from the vehicle.

Before the onset of winter, make sure that:

- the coolant contains sufficient antifreeze (> page 200)
- the fuel used is suitable for winter use (> page 202)
- the oil is changed in good time if single-grade engine oil is being used (> page 199)
- the windshield washer cleaning system contains sufficient antifreeze (> page 162)
- there are snow chains in the vehicle
- suitable winter tires are installed

In wintry conditions, the law may require that winter tires be installed on the wheels of the drive axle. Find out which winter tires are suitable for your needs. Observe country-specific laws.

#### Jump-starting aids

##### **!** WARNING

Liquid or gaseous starting aids react immediately with fuel vapors and are highly flammable. There is a risk of explosion.

Do not use liquid or gaseous starting aids to start the engine.

## Notes on driving

**!** Vehicles without acceleration skid control (ASR): quick changes from slippery to high grip surfaces whilst the drive wheels are spinning can result in damage to the differential gear system. For this reason, avoid wheelspin of the drive wheels.

Please observe the following instructions on driving in winter:

- in snow, slush and on icy roads, fit snow chains to the drive wheels in good time
- adapt your driving style to the wintry road conditions
- if traction problems occur when driving with snow chains, deactivate ASR (▷ page 116) or the Stability Control Assist (▷ page 117)
- if your vehicle is equipped with rotation chains, activate the rotation chains (see the separate Operating Instructions)

description in these Operating Instructions regarding the use of snow chains. When using snow chains, observe the legal requirements of the country in which you are currently driving.

- ▶ Vehicles with Stability Control Assist: if traction problems occur when driving with snow chains, deactivate Stability Control Assist (▷ page 117).

## Snow chains

### WARNING

If you drive too fast with snow chains mounted, they may snap. As a result, you could injure others and damage the vehicle. There is a risk of an accident.

Observe the maximum permissible speed for operation with snow chains.

- !** Only use snow chains which are approved and recommended for Freightliner Trucks. In this way, you will avoid vehicle damage. Please contact a qualified specialist workshop if you have any questions.
- !** Do not fit snow chains to the front axle of the vehicle. You could otherwise damage parts of the vehicle.

The law may require that snow chains be removed as soon as possible once the road is clear of snow. The vehicle's driving and braking characteristics will be adversely affected if you drive on roads that are clear of snow with snow chains fitted to the vehicle.

Observe the notes of the snow chain manufacturer on the maximum permissible speed for operation with snow chains.

Due to legal requirements in individual countries, there may be slight deviations from the

## Useful information

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific deviations are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops: (> page 22).

## Power take-offs

### Function and notes

The engine and power take-offs must be operated at a certain engine speed (working speed), depending on the conditions of use.

The working speed can be changed:

- via the on-board computer in the driving systems menu, **Engine speed** window (> page 155)
- using the  constant engine speed switch (> page 155)

### Engine speed setting



Buttons on the multifunction steering wheel

You can set the idling speed and the working speed. The maximum engine speed is dependent on the connections to the power take-off.

### Activating the engine speed setting and setting the engine speed

- ▶ Press the  button on the multifunction steering wheel repeatedly until the **Engine**

**speed** input window is shown in the on-board computer.

- ▶ Press the  or  button to increase or decrease the engine speed in increments of approximately 20 rpm.
- ▶ Press the  button to exit the input window.

or

- ▶ Wait for approximately 3 seconds. The setting is stored automatically.

### Deactivating the engine-speed setting

- ▶ Press the  button repeatedly until the on-board computer shows the **Engine speed** input window.
- ▶ Press the  button.

The engine speed setting is automatically reset if you drive faster than approximately 12 mph (20 km/h).

### Constant engine speed



When the constant engine speed function is activated, the set working speed for power take-off is controlled by the electronic management system, regardless of the load.

- ▶ Stop the vehicle.
- ▶ Apply the parking brake.
- ▶ Shift into neutral.
- ▶ Engage power take-off.
- ▶ **To switch on:** press the upper section of the  switch. The indicator lamp in the  switch lights up.
- ▶ **To switch off:** press the lower section of the  switch. The indicator lamp in the  switch goes out.

## Useful information

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Read the information on qualified specialist workshops: (▷ page 22).

## Cleaning and care

### Notes on care



#### Environmental note

Only clean your vehicle at specially designed wash bays. Dispose of empty containers and used cleaning products in an environmentally responsible manner.

Regular care helps to maintain the value of the vehicle.

Daimler Trucks North America recommends that you only use care products that have been approved for Freightliner Trucks. You can obtain these care products from any Freightliner Service Center.

If you need to wash upper parts of the vehicle, always use a suitable ladder or another non-slip climbing aid.

## Cleaning the interior

### Cleaning with a high-pressure cleaner

**!** When using liquids to clean the vehicle interior, observe the following points:

- Under no circumstances use power washers.
- Make sure that no fluids enter or remain in gaps and cavities.
- Ensure sufficient ventilation when cleaning.
- Make sure that the vehicle interior is completely dry after cleaning.

## Cleaning the seat covers

**!** Do not use microfiber cloths to clean genuine leather or artificial leather covers. If used often, a microfiber cloth can damage the cover.

**!** Clean:

- artificial leather covers with a cloth moistened with a solution containing 1 % detergent, e.g. dish washing liquid.
- cloth covers with a microfiber cloth moistened with a solution containing 1 % detergent, e.g. dish washing liquid. Wipe entire seat sections carefully to avoid leaving visible lines. Leave the seat to dry afterwards. Cleaning results depend on the type of dirt and how long it has been there.
- genuine leather covers carefully with a damp cloth, then wipe the covers down with a dry cloth. Make sure that the leather does not become soaked. Otherwise, the leather could become rough or cracked. Only use leather care agents that have been tested and approved by Mercedes-Benz. You can obtain these from a qualified specialist workshop.

Please note that:

- leather covers are a natural product and are therefore subject to a natural aging process. Leather can respond differently to certain environmental influences (e.g. high humidity or severe heat), for example more strongly defined folds can develop.
- regular care is required if the look of the leather covers and their touch and feel are to be preserved in the long term.

## Cleaning the seat belts

**!** Observe the following notes on cleaning the seat belts:

- remove any stains or dirt immediately. This will avoid residue or damage.
- do not bleach or dye the seat belts. This could impair the function of the seat belts.
- do not dry the seat belts in direct sunlight or at temperatures above 176 °F (80 °C).

Clean the seat belts with a mild washing solution.

## Cleaning the vehicle exterior

### Notes on cleaning the vehicle exterior

#### WARNING

You could become trapped by the windshield wipers if they start moving while cleaning the windshield or wiper blades. There is a risk of injury.

Always switch off the windshield wipers and the ignition before cleaning the windshield or wiper blades.

#### WARNING

If you use openings in the bodywork or detachable parts as steps, you could:

- slip and/or fall
- damage the vehicle and cause yourself to fall.

There is a risk of injury.

Always use secure climbing aids, e.g. a suitable ladder.

**!** Do not use parts of the vehicle or body openings such as the battery box cover or fuel/DEF tank, for example, as steps. Parts of the vehicle or body openings can otherwise be damaged.

**!** In order to avoid consequential damage, repair damage caused by loose chippings and remove any dirt immediately, in particular:

- insect remains
- bird droppings
- flash rust
- tree resin
- oils and grease
- fuels
- tar stains
- salt residue

Wash your vehicle more frequently if it gets dirty more often.

Scratches, corrosive deposits, corrosion and damage caused by neglect or incorrect care cannot always be completely rectified. In such cases, contact a qualified specialist workshop.

When cleaning the vehicle, always use the vehicle's steps and grab handles or secure climbing aids, such as a suitable ladder.

Keep steps and grab handles free from dirt, such as:

- mud
- clay
- snow
- ice

### Distance sensor



Clean the cover of distance sensor ① regularly. In this way, you will avoid malfunctions. If the distance sensor is dirty, the on-board computer shows the  **Distance sensor dirty** message in the yellow event window.

### Rain and light sensor and Lane Keeping Assist camera



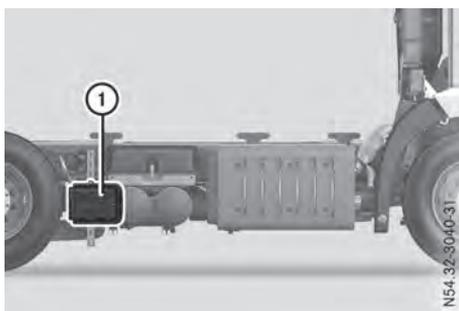
Regularly clean the windshield in the area of rain/light sensor ② and camera ①. In this way, you will avoid malfunctions.

If the area of the windshield used by rain/light sensor ② and camera ① is damaged:

- the function of Lane Keeping Assist and of rain/light sensor ② could be restricted
- have the windshield replaced at a qualified specialist workshop

### Cleaning the Sideguard Assist sensors

❗ If you clean the sensors with a power washer, make sure that you keep a distance of at least 11.8 in (30 cm) between the vehicle and the power washer nozzle. Information about the correct distance is available from the equipment manufacturer.



① Sideguard Assist sensors

Clean the cover of sensors ① regularly. In this way, you will avoid malfunctions.

- ▶ Clean Sideguard Assist sensors ① with water, shampoo and a soft towel regularly.

### Blind Spot Assist camera



Blind Spot Assist is made up of front camera ①, two blind spot cameras ② and the reversing camera. You can find further information on the installation position of the rear

view camera at the rear of the vehicle in the body manufacturer's operating instructions.

Use clear water and a soft cloth to clean the camera lenses. Be careful not to apply wax to the camera lenses when you wax the vehicle. If necessary, remove the wax with water, car shampoo and a soft cloth.

### High-pressure cleaning

#### ⚠ WARNING

The water jet from a circular jet nozzle (dirt blasters) can cause invisible exterior damage to the tires or chassis components. Components damaged in this way may fail unexpectedly. There is a risk of an accident. Do not use power washers with circular jet nozzles to clean the vehicle. Have damaged tires or chassis components replaced immediately.

- ❗ Under no circumstances use power washers in the vehicle interior. The pressurized water and associated spray produced by the power washer could cause extensive damage to the vehicle.

#### 🌿 Environmental note

Only clean your vehicle at specially designed wash bays. Dispose of empty containers and used cleaning products in an environmentally responsible manner.

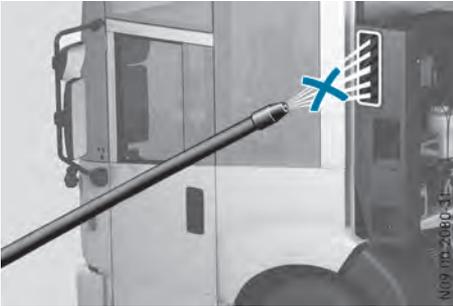
- ❗ The emissions control system may only be cleaned when it is cool. The sensors could otherwise be damaged.

When cleaning, make sure not to point the water jet at the exhaust pipe. Otherwise, the exhaust gas aftertreatment may be damaged.

- ❗ When using high-pressure cleaning equipment, maintain a minimum distance of approx. 1 ft (30 cm) between the spray nozzle and the vehicle parts. Do not use a power washer with a round-jet nozzle. You could damage the vehicle or engine parts.
- ❗ Keep the water jet moving constantly while cleaning. In this way, you will avoid causing damage.

Do not aim the water jet at:

- door joints
- air bellows
- brake hoses
- wheel balance weights
- electrical components
- electrical connectors
- seals



- Treat the engine with preservative agents after it has been cleaned. When doing so, protect the belt drive system from the preservative agent.
- Only use wax-based protective agents for engines that comply with Sheet no. 385.4 of the Mercedes-Benz Specifications for Service Products.

In addition, observe the notes in the "High-pressure cleaning" section (▷ page 158).

### Cleaning light-alloy wheels

- ❗ Do not use acidic or alkaline cleaner when cleaning light-alloy wheels. These can cause corrosion of the wheel nuts or the balance weight safety springs.

Clean the light-alloy wheels regularly.

### Automatic car wash

- ❗ Before washing the vehicle in an automatic car wash, fold in the exterior mirrors and switch off the windshield wipers. Otherwise, the exterior mirrors and windshield wipers could be damaged.

Make sure that the exterior mirrors are fully folded out again when you leave the automatic car wash.

If the vehicle is very dirty, pre-wash it before you put it through the automatic car wash.

After the automatic car wash, remove the wax from the windshield and the wiper blades. This prevents smearing and reduces wiper noise which occur as a result of residue on the windshield.

### Cleaning the engine

- ❗ Observe the following notes when cleaning the engine. This avoids malfunctions and damage to the engine.

- When using high-pressure or steam cleaners, do not point the spray directly at electrical components and electric cables.
- Make sure that no water enters the air intake and ventilation openings.

## Maintenance

### Important safety notes

#### ⓘ Environmental note

If circumstances require you to do some maintenance work yourself, you must observe the environmental protection requirements. When disposing of service products, e.g. engine oil, you must comply with the legal requirements. This also applies to all parts, e.g. filters, that have been in contact with service products.

Dispose of empty containers, cleaning cloths and care products in an environmentally responsible manner.

Observe the instructions for care products.

Do not let the engine run longer than necessary when stationary.

The filter elements for the engine air cleaner must not be cleaned. Tapping, blowing or washing out the filter medium could lead to structural changes and damage. In this case, the required separation efficiency of the filter element can no longer be guaranteed. This may lead to increased wear and a reduced engine service life. Replace air filter elements. The implied warranty is otherwise invalidated and the engine could be damaged.

Like all technical equipment, the vehicle requires care and maintenance. The scope and frequency of maintenance work mainly depend on the operating conditions, which can differ widely.

You must secure the vehicle on axle stands of sufficient load-bearing capacity if work is being carried out underneath the vehicle. Never use the jack instead of stands. The jack could slip and the vehicle could drop. The jack is only intended to raise the vehicle for a short time.

When working on the vehicle, comply with all safety regulations, such as operating instructions, regulations concerning hazardous materials, environmental protection measures, work safety and accident prevention regulations.

Inspection and maintenance work requires special skills that cannot be acquired by reading these Operating Instructions. Always have this work and maintenance work carried out by a qualified specialist workshop.

## MS (maintenance system)

### Introduction

The maintenance system calculates maintenance due dates for the vehicle and its assemblies based on the vehicle's operating conditions.

You can call up the maintenance due dates calculated for the vehicle and its assemblies in the on-board computer (▷ page 79).

The on-board computer first displays the maintenance due date in the event window 14 days before the respective maintenance date.

-  A qualified specialist workshop can program the first message to appear between 0 to 30 days before the due date.

When the maintenance due date has been reached or exceeded, the on-board computer shows additional event windows.

### Automatic maintenance due date event window

#### WARNING

If you do not have the prescribed service/maintenance work or any required repairs carried out, this can result in malfunctions

or system failures. There is a risk of an accident.

Always have the prescribed service/maintenance work as well as any required repairs carried out at a qualified specialist workshop.

-  Not observing a maintenance due date event window and not having maintenance work performed on time can lead to damage to the vehicle or its assemblies. It could also result in increased wear. Always have maintenance work carried out on time and at a qualified specialist workshop.

If you turn the key to the drive position in the ignition lock and a maintenance date is due or has been exceeded, the on-board computer shows the maintenance due date in the gray event window (▷ page 85). When the maintenance due date has been exceeded, the on-board computer shows the overdue maintenance in the yellow event window (▷ page 89).

The maintenance system automatically notifies you of maintenance due dates, for example:.

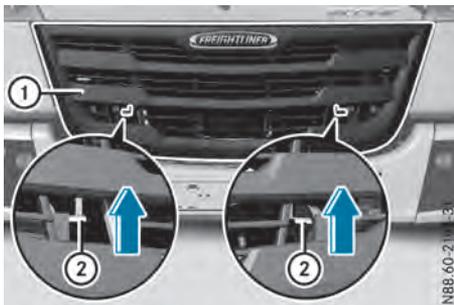
-  **Engine, 12.08.13, 1800 miles**  
Maintenance due dates are displayed 14 days before the respective inspection is due.
  -  **Engine, Maintenance due**  
The maintenance is due.
  -  **Engine, Maintenance due immediately**  
The maintenance due date has been exceeded.
- **To confirm the event window:** press the  button on the multifunction steering wheel.

## Air filter

-  The filter elements for the engine air cleaner must not be cleaned. Tapping, blowing or washing out the filter medium could lead to structural changes and damage. In this case, the required separation efficiency of the filter element can no longer be guaranteed. This may lead to increased wear and a reduced engine service life. Replace air filter elements. The implied warranty is other-

wise invalidated and the engine could be damaged.

### Maintenance flap



- ▶ **To open:** push release lever ② downwards and swing maintenance flap ① upwards.
- ▶ **To close:** swing maintenance flap ① down.
- ▶ Press maintenance flap ① on the left and right sides until you hear maintenance flap ① engage.

### Coolant level

#### WARNING

The cooling system is pressurized, particularly when the motor is warm. If you open the cap, you could be scalded if hot coolant sprays out. There is a risk of injury.

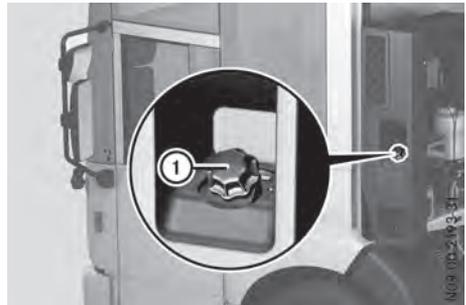
Let the engine cool down before you open the cap. Wear protective gloves and protective eyewear when opening. Open the cap slowly to release pressure.

#### WARNING

Service products may be poisonous and hazardous to health. There is a risk of injury.

Comply with instructions on the use, storage and disposal of service products on the labels of the respective original containers. Always store service products sealed in their original containers. Always keep service products out of the reach of children.

- ❗ Do not operate the vehicle if the coolant level is too low. Otherwise, the engine may be damaged.



Example: coolant expansion tank

The coolant expansion tank is located behind the cab.

If the coolant level in the coolant expansion tank is too low, the on-board computer displays the event window with the  symbol (▷ page 99).

Only open the coolant expansion tank when the coolant temperature is below 122 °F (50 °C).

The coolant level can only be accurately determined when the coolant temperature is between 32 °F (0 °C) and 77 °F (25 °C). First check the coolant temperature using the on-board computer (▷ page 80).

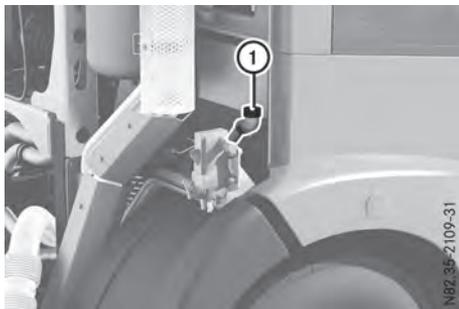
- ▶ Park the vehicle on a level surface.
- ▶ Apply the parking brake.
- ▶ Switch off the engine.
- ▶ Turn the key back in the ignition lock as far as it will go.
- ▶ Turn turquoise cap ① slowly anti-clockwise and release the pressure.
- ▶ Unscrew and remove turquoise cap ①.
- ▶ Check coolant level.
  - The coolant in the expansion tank must reach up to the edge of the filler neck.
- ▶ Refill coolant to the edge of the filler neck. Pay attention to the coolant mixture ratio and the water quality (▷ page 200).
- ▶ Replace turquoise cap ① and tighten it as far as it will go.

## Windshield washer system/headlamp cleaning system

### WARNING

Windshield washer concentrate is highly flammable. If windshield washer concentrate gets onto hot components of the engine or the exhaust system, it can ignite. There is a risk of fire and injury.

Make sure that windshield washer concentrate is not spilled in the vicinity of the filler neck.



Example: washer fluid reservoir

The washer fluid reservoir for the windshield washer system has a capacity of approximately 4.2 US gal (16 liters).

When the washer fluid level in the washer fluid reservoir is too low, the on-board computer displays a gray event window with the  symbol (▷ page 85).

Add a washer fluid concentrate according to Mercedes-Benz Specifications for Service Products Sheet No. 371.0 throughout the entire year. Adjust the mixing ratio to suit the outside temperature.

At temperatures above freezing, use a washer concentrate for the summer to prevent smearing. If there is a risk of frost, use a washer fluid concentrate for winter to prevent the water from freezing on the windshield.

- ▶ Mix the washer fluid to the appropriate mixing ratio in a container beforehand.
- ▶ Unscrew and remove cap ① of the washer fluid reservoir.
- ▶ Refill the washer fluid reservoir.
- ▶ Replace cap ① and screw it on.

## Replacing the wiper blades

### WARNING

If the windshield wipers begin to move while you are changing the wiper blades, you could be trapped by the wiper arm. There is a risk of injury.

Always switch off the windshield wipers and ignition before changing the wiper blades.

- ❗ Only hold the wiper blade by the wiper arm. You could otherwise damage the wiper rubber.
- ❗ Never open the front flap when a wiper arm is folded out. Otherwise, you can damage the front flap.  
Do not fold the wiper arm onto the windshield without a wiper blade. You can otherwise damage the windshield.

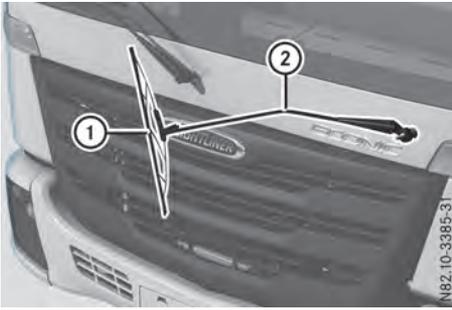
Wiper blades are wear parts. Change the wiper blades every six months, ideally in the spring and autumn. Otherwise, the windshield and rear window will not be wiped properly.



Example: windshield wipers in maintenance position

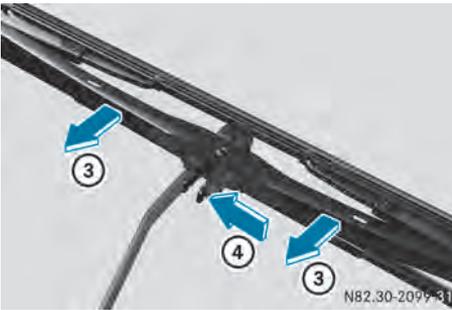
Vehicles with safety bars: before the wiper blades can be replaced the windshield wipers must be moved to the maintenance position.

- ▶ Apply the parking brake.
- ▶ Switch on the ignition.
- ▶ Switch on the windshield wipers.
- ▶ Switch off the ignition when the windshield wipers are in the maintenance position.

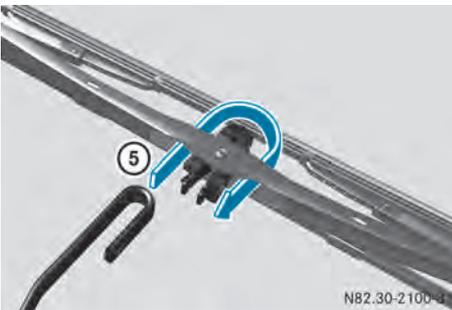


Windshield wiper arm with wiper blade (example: on the left side of the vehicle)

- ▶ Remove the key from the ignition lock.
- ▶ **To remove the wiper blade:** fold wiper arm ② away from the windshield.
- ▶ Set wiper blade ① at a right angle to the wiper arm.



- ▶ Press locking tabs ④ together and push wiper blade ① out of the hook section of wiper arm ② in the direction of arrow ③.
- ▶ Remove wiper blade ①.



- ▶ **To install a wiper blade:** slide the wiper blade coupling into the hook of wiper

- arm ② in the direction of arrow ⑤. Press it until the locking tabs engages audibly.
- ▶ Press the wiper blade fully into the hook on wiper arm ② until you hear the locking tabs engage.
- ▶ Turn wiper blade ① parallel to wiper arm ②.
- ▶ Fold wiper arm ② onto the windshield again.

### Engine oil level

#### Checking the engine oil level

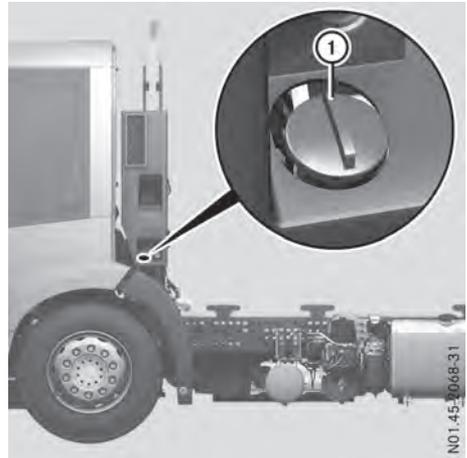
Check the engine oil level before the start of every journey.

- ▶ Check the oil level using the on-board computer (▷ page 80).
- ▶ Add the oil as shown in the on-board computer.

#### Refilling engine oil

**!** Only use oils which have been approved for the vehicle and with the prescribed SAE classification.

Do not add too much oil. If you add too much oil, the engine or the exhaust system could be damaged. Have excess oil siphoned off.



Example: engine oil filler cap

Do not add the filling quantity shown in the on-board computer until the menu window shows the  symbol.

You will find information about engine oils in the "Service products" section (▷ page 199).

- ▶ Park the vehicle on a level surface.
- ▶ Apply the parking brake.
- ▶ Switch off the engine.
- ▶ Unscrew and remove cap ①.
- ▶ Add oil as shown in the on-board computer.
- ▶ Replace cap ① and screw it on.

### Oil level in the automatic transmission

#### General notes

**!** If the  indicator lamp flashes or lights up during the journey, then the temperature of the transmission oil or the coolant is too high. The reason for this may be that the transmission oil level is too high or too low. If the transmission oil temperature is often high there is a danger of damage to the transmission.

Only check the oil level when the automatic transmission is at normal operating temperature.

#### Checking the oil level in the display

##### Starting oil level measurement



- ▶ Park the vehicle on a level surface.
- ▶ Apply the parking brake.
- ▶ Shift the automatic transmission to the neutral position.

- ▶ Start the engine and leave it running at idling speed.
- ▶ Press buttons ② and ③ at the same time. Press button ②. The oil level measurement starts. During oil level measurement, display ① shows the codes **oL 08** to **oL 01** in succession.
- ▶ Wait approximately 2 minutes. After a delay, display ① automatically shows a code for the oil level or a fault code.

#### Codes that can be shown in the display

Codes for the oil level:

Code	Meaning
TRANS OIL LEVEL OK	The oil level in the transmission is sufficient.
TRANS OIL LEVEL LO	The oil level in the transmission is too low.
	The number subsequently displayed indicates the transmission oil quantity that must be refilled, for example <b>01</b> = 1 US qt (1 liter).
TRANS OIL LEVEL HI	The oil level in the transmission is too high.
	The number subsequently displayed indicates the transmission oil quantity that must be refilled, for example <b>01</b> = 1 US qt (1 liter).

Possible fault codes during the oil level measurement:

Code	Meaning	Remedy
ENG RPM TOO LO	The engine speed is too low.	▶ Leave the engine running at idling speed.
OL EH	The engine speed is too high.	▶ Leave the engine running at idling speed.

Code	Meaning	Remedy
OL SN	The automatic transmission is not in the neutral position.	▶ Shift the automatic transmission to the neutral position.
OL TL	The oil temperature is too low.	▶ Leave the engine running until the transmission oil reaches operating temperature.
OL TH	The oil temperature is too high.	▶ Switch off the engine until the oil temperature in the transmission has dropped to operating temperature.
OL SH	The vehicle is rolling.	▶ Stop the vehicle. ▶ Apply the parking brake.
OL FL	The sensor for the oil level is malfunctioning.	▶ Check the oil level with the oil dipstick. ▶ Have the malfunction checked at a qualified specialist workshop.

### Ending oil level measurement

- ▶ Press any gear button.  
The oil level measurement is finished. The shift position appears on the left and the selected gear appears on the right in display ① again.
- ▶ Refill the transmission oil if necessary.

### Checking the oil level with the oil dipstick and adding transmission oil

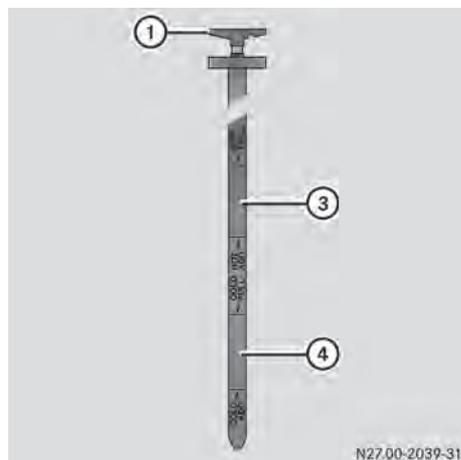
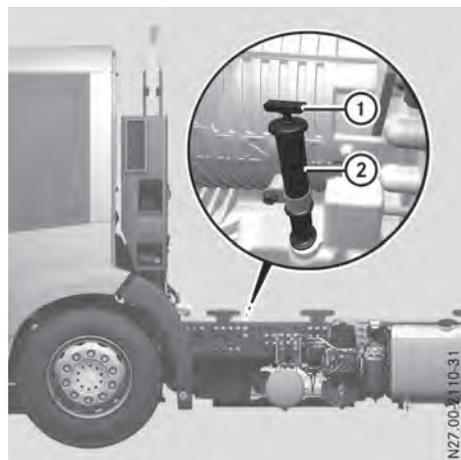
#### WARNING

Certain components on the engine may be very hot. When carrying out work on the engine there is a risk of injury.

Where possible, let the engine cool down and touch only the components described in the following.

- ❗ Use only approved transmission oils with the prescribed SAE classification.

When the automatic transmission is at operating temperature, do not refill the transmission oil to a level above the upper warm area marking. If you refill too much transmission oil, have the transmission oil siphoned off. Otherwise, you could damage the automatic transmission.



Oil dipstick on automatic transmission

- ▶ Park the vehicle on a level surface.
- ▶ Apply the parking brake.

- ▶ Shift the automatic transmission to the neutral position.
  - ▶ Start the engine and let it run at idling speed for approximately 1 minute.
  - ▶ Shift the automatic transmission to D and wait approximately 30 seconds.
  - ▶ Shift the automatic transmission to R and wait approximately 30 seconds.
  - ▶ Shift the automatic transmission to N and wait approximately 30 seconds.
  - ▶ Switch off the engine.
  - ▶ Tilt the cab forwards (▷ page 173).
  - ▶ Start the engine with the cab tilted (▷ page 175).
  - ▶ Pull out oil dipstick ①.
  - ▶ Wipe oil dipstick ① with a lint-free cloth.
  - ▶ Insert oil dipstick ① into dipstick tube ② as far as it will go and pull it out again.
  - ▶ Check the oil level on dipstick ①. When the automatic transmission is at normal operating temperature: the oil level must be within hot range ③.
- When the automatic transmission is cold: the oil level must be within cold range ④.
- ▶ Switch off the engine.
  - ▶ Add the required quantity of transmission oil into dipstick tube ②.
  - ▶ Insert oil dipstick ① back into dipstick tube ② as far as it will go.
  - ▶ Check the engine oil level again.
  - ▶ Tilt the cab back into the driving position.

## Vehicle assemblies

### Environmental note

Improper handling of operating fluids is hazardous to the environment.

Do not allow operating fluids to enter the sewage system, surface waters, ground water or soil.

Check the vehicle assemblies for leaks regularly. If fluid loss is identified, e.g. by oil drops on the parking area, have the cause of the fluid loss rectified at a qualified specialist workshop.

## Checking the anti-corrosion protection

- ❗ Road salt is corrosive. Wash the vehicle more often in winter to remove road salt residue. The road salt residue can otherwise damage the anti-corrosion protection.

The cab is provided with body cavity protection and underbody protection.

- ▶ Check the vehicle regularly for corrosion damage, particularly the compressed-air and hydraulic lines.
- ▶ Have any damage to the factory-installed anti-corrosion protection rectified at a qualified specialist workshop.
- ▶ To ensure sufficient anti-corrosion protection, as a precautionary measure spray the underside of the vehicle with a wax-based protective agent according to Sheet No. 385.1 of the Mercedes-Benz Specifications for Service Products.

## Batteries

### Important safety notes

#### WARNING

Battery acid is caustic. There is a risk of injury.

Avoid contact with skin, eyes or clothing. Do not inhale gases released from the battery. When carrying out maintenance work on the battery, wear acid-resistant protective clothing, particularly protective eyewear, protective gloves and an apron. Do not lean over the battery. Keep the batteries out of the reach of children.

If you come into contact with battery acid, observe the following:

- immediately rinse battery acid off skin thoroughly with plenty of clean water and seek immediate medical attention.
- if you get battery acid in your eyes, rinse them thoroughly with plenty of clean water immediately. Consult a doctor without delay.

## Environmental note



Batteries contain pollutants. It is illegal to dispose of them with the household rubbish. They must be collected separately and disposed of in an environmentally responsible recycling system.



Dispose of batteries in an environmentally responsible manner. Take discharged batteries to a qualified specialist workshop or to a collection point for used batteries.

Observe the safety notes and protective measures when handling the battery.



Risk of explosion. Explosive oxyhydrogen is produced when batteries are being charged. Only charge the batteries in a well-ventilated area.



Risk of explosion. Avoid creating sparks. Avoid fire, open flames and do not smoke when handling the battery.



Battery acid is caustic. Wear acid-resistant protective gloves. Splashes of acid on skin or clothing should be neutralized immediately using soapy water or acid neutralizer and then rinsed with water.



Wear eye protection. When mixing water and acid, the liquid may splash into your eyes. Rinse out any acid that splashes into eyes immediately using clean water and seek medical attention at once.



Keep out of the reach of children. Children are not able to evaluate the risk involved in handling batteries and acid.



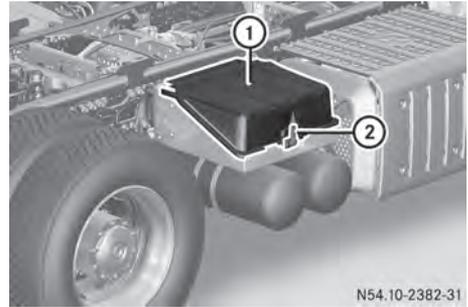
Always observe the safety instructions, protective measures and procedures specified in these Operating Instructions when handling the battery.

For safety reasons, Daimler Trucks North America recommends that you only use batter-

ies that have been tested and approved for your vehicle by Mercedes-Benz.

## Battery compartment

### Cover



Battery box (example)

- ▶ **To remove:** open catch ② and remove battery compartment cover ①.
- ▶ **To replace:** replace battery compartment cover ①.  
Attach catch ② and close.

## Disconnecting/connecting the batteries

### ⚠ WARNING

During the charging process, a battery produces hydrogen gas. If a short circuit occurs or sparks are created, the hydrogen gas can ignite. There is a risk of an explosion.

- Make sure that the positive terminal of a connected battery does not come into contact with vehicle parts.
- Never place metal objects or tools on a battery.
- It is important that you observe the described order of the battery terminals when connecting and disconnecting a battery.
- When jump-starting, make sure that the battery poles with identical polarity are connected.

- It is particularly important to observe the described order when connecting and disconnecting the jumper cables.
- Never connect or disconnect the battery terminals while the engine is running.

Observe the safety notes on handling batteries.

Before disconnecting and connecting the batteries:

- ▶ Remove the key from the ignition lock.
- ▶ Switch off all electrical consumers.

### Disconnecting

- ▶ Remove the battery compartment cover.
- ▶ Disconnect the negative terminal clamp first, and then disconnect the positive terminal clamp.

### Connecting

- ▶ Connect the positive terminal clamp first, and then connect the negative terminal clamp.  
Do not interchange the battery terminals.
- ▶ Replace the battery compartment cover.

Carry out the following tasks after an interruption to the power supply or after reconnecting the batteries:

- ▶ Deactivate anti-theft protection on the audio equipment (radio).
- ▶ Set the switch-on time for the auxiliary heating system (▶ page 63).

## Removing/installing batteries

### Important safety notes

**!** Tighten the battery carrier screws with a tightening torque of 15 lb-ft (20 Nm). Do not use an impact wrench. Otherwise, you could damage the threaded connection.

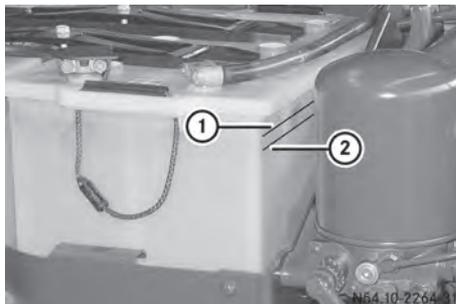
Observe the safety notes on handling batteries.

### Maintenance and care

#### Checking the battery fluid level

**!** Tap water reduces the electrical performance of the battery. Only refill with distilled or de-ionized water.

Do not use a metal funnel to refill. The metal funnel could cause a short circuit and the batteries could be damaged.



Battery fluid level (example: right-hand battery)

Observe the safety notes on handling batteries.

- ▶ Check the battery fluid level as regularly as required by the vehicle operating conditions, and at least once a year.
- ▶ Remove the battery compartment cover.
- ▶ Vehicles with batteries installed one above the other: remove the batteries.
- ▶ Unscrew the cell caps.
- ▶ Check the battery fluid level.  
The battery fluid must be between minimum fill level mark ② and maximum fill level mark ① in each battery cell.
- ▶ Refill with distilled/de-ionized water.
- ▶ Refit the plugs.
- ▶ Vehicles with batteries installed one above the other: install the batteries.
- ▶ Replace the battery compartment cover.

### Charging the batteries

#### **⚠ WARNING**

During charging and jump-starting, explosive gases can escape from the battery. There is a risk of an explosion.

Particularly avoid fire, open flames, creating sparks and smoking. Ensure there is sufficient ventilation while charging and jump-starting. Do not lean over a battery.

#### **⚠ WARNING**

A discharged battery can freeze at temperatures below freezing point. When jump-starting the vehicle or charging the battery,

gases can escape from the battery. There is a risk of an explosion.

Allow the frozen battery to thaw out before charging it or jump-starting.

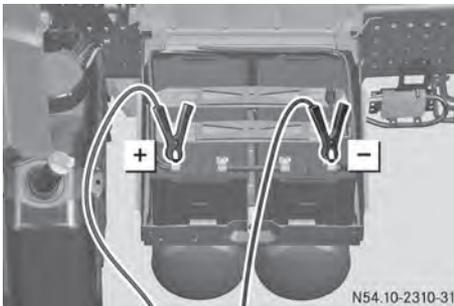
If the warning and indicator lamps do not light up on the instrument cluster when temperatures are low, it is highly probable that the discharged battery has frozen. In this case, you may neither charge the battery nor jump-start the vehicle. The service life of a battery that has been thawed may be shortened. The starting characteristics may deteriorate, especially at low temperatures. Have the thawed battery checked at a qualified specialist workshop.

**!** Use standard charging equipment to charge the batteries. Observe the correct charging voltage. Do not use rapid charging for new batteries. For used batteries, the charging current for rapid charging can be a maximum of 75% of the battery capacity. Otherwise, you could damage the batteries.

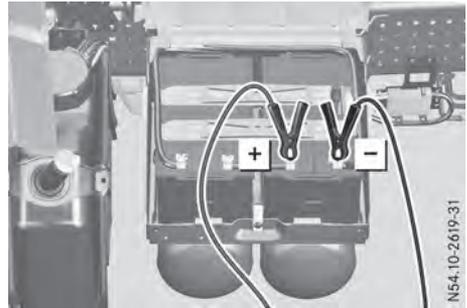
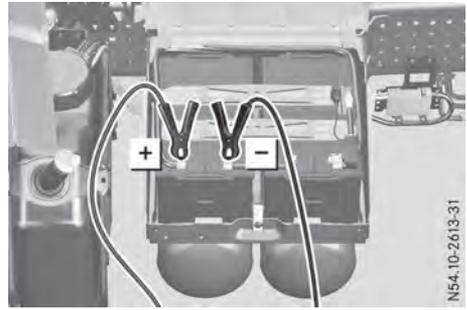
**!** The charging current must not exceed 10% (rapid charging maximum 75%) of the battery capacity. Otherwise, you could damage the batteries.

Charging of the batteries can be completed with a 12 V or 24 V charger. When charging observe the various connection options depending on which charger is used for charging.

When charging with 12 V the batteries can be charged in sequence and if two 12 V chargers are available, they can be charged at the same time.



Connection of the charging cable (example: 24 V charger)



Connection of the charging cable (example: 12 V charger)

If the vehicle is used often or predominantly over short distances or is parked for a long period, check the battery charge level more often.

Recharge the batteries regularly if the vehicle is parked for longer periods. This ensures that the vehicle can always be started.

A long battery service life can be achieved if they are always adequately charged.

- ▶ Remove the battery compartment cover (▷ page 167).
- ▶ Disconnect the negative terminal clamp from the batteries first, and then disconnect the positive terminal clamp. Do not detach the connecting cables between the batteries.
- ▶ Unscrew the battery cell caps.
- ▶ Set the charging voltage. See the battery charger's operating instructions.
- ▶ Connect the negative terminal clamp of the battery charger to the  $-$  negative terminal and the positive terminal clamp to the  $+$  positive terminal of the batteries.
- ▶ Switch on the battery charger. See the battery charger's operating instructions.

- ▶ When the batteries are charged: switch off the battery charger and disconnect the positive and negative terminal clamps from the batteries.
- ▶ Screw the cell caps onto the batteries.
- ▶ Disconnect the positive terminal clamp from the batteries first, and then disconnect the negative terminal clamp.
- ▶ Replace the battery compartment cover.

### Battery care

- ❗ Dirty battery clamps and battery surfaces cause leak currents which lead to the batteries discharging.
- ❗ Do not use cleaning agents containing fuel. Cleaning agents containing fuel corrode the battery housing.
- ❗ If dirt gets into the battery cell, battery self-discharge will increase and the battery may be damaged.

Observe the following on battery care:

- ▶ Always keep the terminal clamps and battery surfaces clean and dry.
- ▶ Lightly grease the undersides of the battery terminal clamps with acid-resistant grease.
- ▶ Only clean the batteries with the cell caps screwed in.  
Otherwise, dirt can enter the battery cells.
- ▶ Only clean the battery housing with commercially available cleaning agents.
- ▶ Recharge batteries that are not in use with a no-load voltage of less than 12.4 V.

### Replacing the batteries

Daimler Trucks North America recommends that you replace the batteries with batteries of the same type. If you use another type of battery, have the battery type set in the on-board computer by a qualified specialist workshop.

### Notes parking the vehicle for an extended period

If you park your vehicle for longer than three weeks, observe the notes on parking the vehicle for an extended (> page 170).

### Parking the vehicle for an extended period

When parking the vehicle for an extended period, special measures according to Mercedes-Benz Specifications for Service Products Sheet No. 382.0 need to be taken. You can obtain detailed information from any Freightliner Service Center.

## Useful information

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific deviations are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops: (> page 22).

## Where will I find...?

### Vehicle tool kit and emergency equipment

#### Important safety notes

When working on the vehicle, comply with all safety regulations, such as the operating instructions, regulations concerning hazardous materials, environmental protection measures, work safety and accident prevention regulations.

Observe the notes on "Changing a wheel in the event of a flat tire" (> page 177).

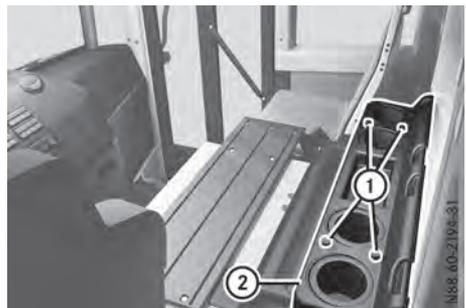
#### Overview

The vehicle tools and the emergency equipment are stowed in the vehicle as follows:

Vehicle tools or emergency equipment	Storage location
Support rod	Stowage compartment behind the co-driver's seats
Drive-on wedge	Stowage space under the outer co-driver's seat
Vehicle tool kit	Stowage compartment behind the co-driver's seats
Hand wipe	Stowage space behind the co-driver's seats

Vehicle tools or emergency equipment	Storage location
Flash lamp	Stowage compartment above the co-driver's seats
Pump lever	Stowage compartment behind the co-driver's seats
Tire inflator hose	Stowage compartment above the co-driver's seats
Support block	Stowage space under the outer co-driver's seat
First-aid kit	Under the center co-driver's seat
Jack	On the chassis
Vehicle document wallet	Driver's door stowage space
Warning triangle	Stowage space under the outer co-driver's seat
Warning beacon	Stowage compartment above the co-driver's seats
Reflective safety vest	Stowage compartment above the co-driver's seats

#### Tool kit compartment behind the co-driver's seats



- ▶ Remove screws ①.
- ▶ Remove cover ② upwards.

## Jack

- i** The jack has a maximum weight of 31.5 lbs (14.3 kg) depending on the vehicle's equipment.
- You will find the maximum load-bearing capacity of the jack stated on the adhesive label attached to the jack.
- Following a malfunction, please contact a qualified specialist workshop.

### Jack maintenance

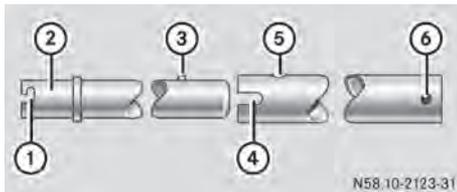
- ▶ **After usage:** clean all moving parts and reapply grease to them.
- ▶ **Every six months:** completely extend and retract the piston.

## Pump lever (2-part)

### ⚠ WARNING

If you do not assemble the pump lever as described then the lever can slip from the guide when pumping. There is a risk of injury.

Make sure that the locking pin of the pump lever is engaged in the bore intended for the purpose.



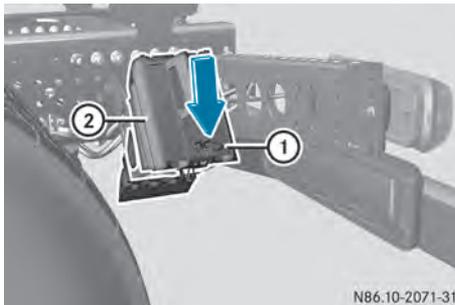
- ① Recess (jack)
- ② Jacking point (wheel wrench/cab tilt pump)
- ③ Retaining pin
- ④ Recess (for operating the winch and jack)
- ⑤ Hole for retaining pin
- ⑥ Retaining sleeve for inserting the hand crank (spare wheel hoist)

Use the pump lever to operate:

- the jack
- the wheel wrench
- the spare wheel winch
- the cab tilt pump

- ▶ **To assemble the pump lever:** align and insert retaining pin ③ into hole ⑤ of both pump lever parts.
- ▶ Press retaining pin ③ into hole ⑤ until it engages.
- ▶ **To disassemble the pump lever:** press locking pin ③ and pull apart the pump lever.

## Wheel chock



Wheel chock (example: on the chassis frame)

Depending on the vehicle version and equipment, the storage location of the wheel chocks may vary.

### Removing the wheel chock

- ▶ Unhook the rubber tensioning strap.
- ▶ Press and hold retainer ① in the direction of the arrow.
- ▶ Pull out wheel chock ②.
- ▶ Release retainer ①.

### Inserting the wheel chock

- ▶ Press and hold retainer ① in the direction of the arrow.
- ▶ Insert wheel chock ② into the bracket.
- ▶ Release retainer ①.
- ▶ Hook in the rubber tensioning strap.

## Cab

### Before tilting the cab

### ⚠ WARNING

When the cab is being tilted, it could suddenly fall forwards to its end position. There

is a risk of injury for persons in the tipping range of the cab.

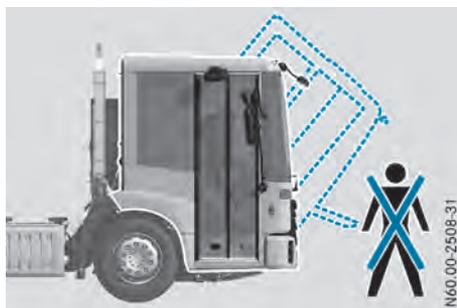
Only tilt the cab when there are no persons within the tilting range. Do not remain in the area underneath the cab when the cab is tilted.

**⚠ WARNING**

There are components which move in the engine compartment, e.g. the cooler fan and the poly-V-belt. There is a risk of injury.

If you have to carry out any work in the engine compartment,

- switch off the ignition
- never reach into the danger zone of moving component parts
- remove any jewellery and or watches
- clothing and hair, for example, should kept clear of the moving parts



Tilting area of the cab

Before tilting the cab, carry out the following steps:

- ▶ For safety reasons, keep the area in front of the cab unobstructed.
- ▶ Apply the parking brake.
- ▶ Shift into neutral.
- ▶ Switch off the engine.
- ▶ To start the engine after tilting the cab, turn the key in the ignition to the drive position.
- ▶ Switch off the auxiliary heating system (▷ page 63).
- ▶ Remove all loose objects from the cab, for example:

- drink cans
- bottles
- tools
- bags

- ▶ Close the doors.
- ▶ Use chocks to safeguard the vehicle against rolling away.

**Mechanical-hydraulic cab tilting unit**

**Cab tilting pump overview**



- 1 Tilting position
- 2 Drive position
- ① Valve lever
- ② Hexagon nut

**Tilting the cab forwards**

Do not step on the engine when the cab is tilted.

- ▶ Before tilting the cab, observe the notes (▷ page 172).
- ▶ Open the maintenance flap (▷ page 161).
- ▶ Swing valve lever ① on the tilting pump to position 1.
- ▶ Fit the pump lever to hexagon nut ② on the tilting pump using the wheel wrench (vehicle tool kit).
- ▶ Move the pump lever up and down on the tilting pump until the cab tilts into the front end position.  
The cab is unlocked automatically.
- ▶ If there is noticeable resistance when you operate the pump lever, check that tilting position 1 has been set correctly on valve lever ① on the tilting pump.

- ▶ Secure the cab with the support rod if it is tilted fully to its end position.
- ▶ If there is no noticeable resistance when you operate the pump lever, have the tilting hydraulics checked at a qualified specialist workshop.

### Tilting the cab back into the driving position

#### WARNING

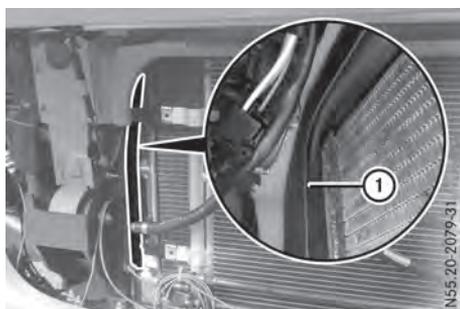
If the cab is not locked, the following dangerous situations could arise when the vehicle decelerates:

- it could tilt forwards
- you could lose control of the vehicle.
- persons in the cab could be thrown forwards
- persons or objects in the swinging range could be hit

There is a risk of an accident and injury.

Before every journey, make sure that:

- the cab is locked
- the cab is engaged in driving position and the valve lever is in driving position
- the indicator lamp goes out when the engine is started



① Sealing lip

Before tilting back the cab, check that sealing lip ① has been properly reinserted. Sealing lip ① must rest flush and cannot be twisted.

- ▶ Remove the support rod.
- ▶ Swing valve lever ① on the tilting pump to driving position ②.
- ▶ Attach the pump lever with the wheel wrench to hexagon nut ② on the tilting pump.
- ▶ Move the pump lever up and down on the tilting pump until the cab is tipped into the rear end position. The catch engages audibly and the cab automatically locks. Do not continue to operate the pump lever on the tilting pump once the cab is locked in position.
- ▶ Close the maintenance flap.
- ▶ Make sure that the  indicator lamp in the instrument cluster goes out after you start the engine. When the  indicator lamp goes out, the cab is locked. If the  indicator lamp does not go out, repeat the process and tip the cab back again.

**Problems when tilting the cab**

Problem	Possible causes/consequences and ► Solutions
The cab cannot be tilted.	The valve lever of the mechanical-hydraulic cab tilting pump is in the "Tilt back in driving position". ► Turn the valve lever of the mechanical-hydraulic cab tilting pump so that it points towards the "Tilt forward" position (► page 173).
	The tilting hydraulics are leaking or have failed. ► Have the tilting hydraulics repaired at a qualified specialist workshop.

**Engine**

**Starting and stopping the engine with the cab tilted**

**⚠ WARNING**

There are components which move in the engine compartment, e.g. the cooler fan and the poly-V-belt. There is a risk of injury. If you have to carry out any work in the engine compartment,

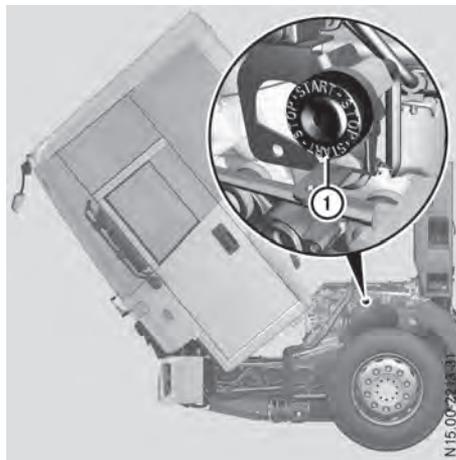
- switch off the ignition
- never reach into the danger zone of moving component parts
- remove any jewelry and or watches
- clothing and hair, for example, should kept clear of the moving parts

**⚠ WARNING**

Certain components on the engine may be very hot. When carrying out work on the engine there is a risk of injury.

Where possible, let the engine cool down and touch only the components described in the following.

Be aware of the road and traffic situation when working on public roads and secure your position accordingly.



Example

**Before starting and stopping the engine**

- Turn the key to the drive position in the ignition lock.
- Shift into neutral.
- Tilt the cab forwards (► page 173).

**Starting the engine**

- Press external engine start/engine stop ① until the engine starts.

**Starting the engine and increasing the engine speed**

- Press and hold external engine start/engine stop ① until the desired engine speed is achieved. After about three seconds the engine speed increases. After external engine start/engine stop ① has been released, the engine continues to run at the speed currently set.

The engine speed can be increased up to the limiting speed.

### Stopping the engine

- ▶ Press external engine start/engine stop ① again.
- ▶ Tilt the cab back to the driving position.

### Bleeding the fuel system

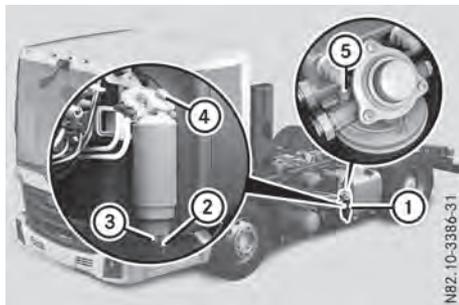
#### Bleeding the fuel system, without fuel prefilter on the chassis

- ▶ Turn the key to the start position in the ignition lock. Do not depress the accelerator pedal whilst doing so.
- ▶ If the engine starts normally, release the key and depress the accelerator pedal several times.  
The fuel system is completely bled.
- ▶ If the engine does not start, turn the key to the start position in the ignition lock again.

#### Bleeding the fuel system with fuel prefilter on the chassis frame

##### ⓘ Environmental note

Dispose of the water-fuel mixture in an environmentally responsible manner.



Fuel prefilter on the chassis frame (example: left-hand side of the vehicle)

If water has collected in inspection window ③, drain fuel prefilter on chassis ① before bleeding. Drain fuel prefilter on chassis ① regularly.

#### Draining the fuel prefilter on the chassis

- ▶ Place a collector under drain plug ②.
- ▶ Turn drain plug ② open.
- ▶ Operate hand pump ④ and collect the fuel/water mixture.
- ▶ Turn drain plug ② closed.

#### Bleeding using the hand pump of the fuel prefilter on the chassis frame

- ▶ Unscrew the fuel tank filler cap.
- ▶ Place the collector underneath fuel prefilter ①.
- ▶ Unscrew bleed screw ⑤.
- ▶ Push hand pump ④ repeatedly until the fuel escaping at bleed screw ⑤ is free of bubbles.
- ▶ Tighten bleed screw ⑤.

ⓘ If there was no fuel in the fuel tank, press hand pump ④ again until there is noticeable resistance.

- ▶ Tighten the fuel tank filler cap.
- ▶ Turn the key to the start position in the ignition lock. Do not depress the accelerator pedal whilst doing so.
- ▶ If the engine starts normally, release the key and depress the accelerator pedal several times.  
The fuel system is completely bled.
- ▶ If the engine does not start, turn the key to the start position in the ignition lock again.

Engine does not start	
Problem	Possible causes/consequences and ► Solutions
Engine fails to start when the outside temperature is low.	<p>The flow properties of the diesel fuel are inadequate due to paraffin separation.</p> <ul style="list-style-type: none"> <li>► Malfunctions resulting from paraffin separation can be corrected by warming the entire fuel system, e.g. by parking the vehicle in a heated area.</li> <li>► If the engine does not start after another attempt, have the cause traced and rectified at a qualified specialist workshop.</li> </ul>
The engine will not start.	<p>The loading tailgate is switched on.  <b>Starter inhibitor active</b> appears in the gray event window in the on-board computer.</p> <ul style="list-style-type: none"> <li>► Deactivate the loading tailgate; see the separate Operating Instructions.</li> </ul>
	<p>The engine electronics are malfunctioning.</p> <ul style="list-style-type: none"> <li>► Turn the vehicle key fully back in the ignition lock before the next starting attempt.</li> </ul>
	<p>The vehicle was parked with a gear engaged, e.g. with the reservoir pressure in the auxiliary consumers circuit exhausted as a result of pressing the EMERGENCY OFF switch. For safety reasons, the engine cannot be started when a gear is engaged.</p> <ul style="list-style-type: none"> <li>► Charge the compressed-air system with an external compressed-air source.</li> <li>► Start the engine again.</li> </ul>

## Flat tire

### Changing a wheel in the event of a flat tire

#### Important safety notes

##### **WARNING**

On uphill and downhill slopes, the jack could tip over with the vehicle raised. There is a risk of injury.

Do not change wheels on uphill or downhill gradients. Notify a qualified specialist workshop.

##### **WARNING**

If you do not position the jack correctly at the appropriate jacking point of the vehicle,

the jack could tip over with the vehicle raised. There is a risk of injury.

Only position the jack at the appropriate jacking point of the vehicle. The base of the jack must be positioned vertically, directly under the jacking point of the vehicle.

##### **WARNING**

If you park a vehicle with air suspension and leave the ignition switched on, the air suspension remains active. If you then raise the vehicle using the jack, the air suspension attempts to compensate the change in vehicle level. The jack could tip over. There is a risk of injury.

Remove the key from the ignition lock before raising the vehicle. This prevents automatic vehicle level compensation.

**⚠ WARNING**

Oiled, greased or damaged wheel nuts or wheel bolt threads can cause the wheel nuts to loosen or be damaged. As a result, you could lose a wheel while driving. There is a risk of an accident.

Never oil or grease the threads. In the event of damage to the threads, contact a qualified specialist workshop immediately. Have the damaged wheel nuts or wheel bolts replaced. Do not drive on.

**⚠ WARNING**

If you remove a wheel that is resting on the wheel bolts under load, it may fall off or tip. There is a risk of injury.

Remove the last three wheel nuts when it is clear that the wheel is resting on the wheel bolts and is not under load.

**⚠ WARNING**

Wheel and tire dimensions as well as the type of tire can vary between the spare wheel and the wheel to be replaced. When the spare wheel is mounted, driving characteristics may be severely affected. There is a risk of an accident.

In order to reduce risks:

- you should therefore adapt your driving style and drive carefully.
- never mount more than one spare wheel that differs from the wheel to be replaced.
- only use a spare wheel that differs from the wheel to be replaced for a short time.
- have a spare wheel that differs from the wheel that has been changed replaced at the nearest qualified specialist workshop. You must observe the correct wheel and tire dimensions as well as the wheel type.

**!** Do not raise vehicles equipped with a loading crane or loading tailgate by using the hydraulic supports. This would cause damage to the chassis.

When changing a wheel:

- only use wheel nuts that are approved for your vehicle
- note that the wheel nuts for steel and light-alloy wheels differ
- note that the wheel nuts for light-alloy wheels on the front and rear axles differ

Observe the following when raising the vehicle:

- the jack is designed only to raise the vehicle for a short time, e.g. while a wheel is being changed. It is not suitable for raising and holding the vehicle so that work can be carried out underneath it.
  - only position the jack at the appropriate jacking point of the vehicle. Make sure that the jack is correctly positioned on the jacking point before raising the vehicle.
  - secure the vehicle before raising it to prevent it from rolling away, e.g. by applying the parking brake and/or using chocks. Do not release the parking brake while the vehicle is raised.
  - the surface on which the jack is standing must be firm and level. Place the jack on an underlay if the surface is not firm.
  - make sure that the gap between the underside of the raised tire and the ground does not exceed 1.2 in (30 mm). The vehicle could otherwise slip off the jack or tip over.
  - do not change a wheel on a slope. The vehicle could otherwise slip off the jack.
  - do not place your hands or feet under the raised vehicle.
  - do not lie under the raised vehicle.
  - make sure that nobody is in the vehicle when it is raised.
  - do not raise vehicles equipped with a loading crane or loading tailgate by using the hydraulic supports. This would cause damage to the chassis.
  - do not start the engine and avoid other jolts while the vehicle is raised. The vehicle could otherwise slip off the jack.
- ▶ Park the vehicle on a firm and level surface.
- ▶ Apply the parking brake.
- ▶ Use chocks to safeguard the vehicle against rolling away.

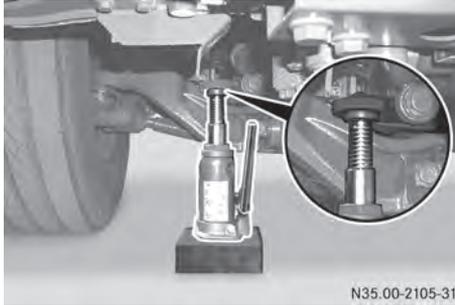
For further information on tire pressure, see the "Wheels and tires" section (▶ page 192).

## Spare wheel

For the location of the spare wheel and notes on removing the spare wheel, see the body manufacturer's operating instructions.

## Positioning the jack

### Air-sprung front axle



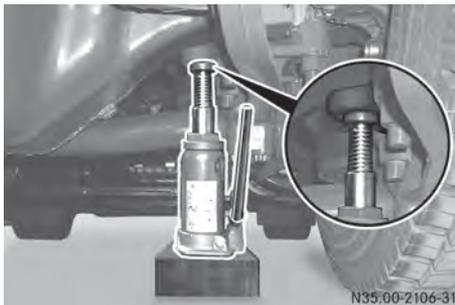
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- ▶ Flat tire on the left-hand side of the vehicle: turn the multifunction steering wheel to the left as far as it will go.

or

- ▶ Flat tire on the right-hand side of the vehicle: turn the multifunction steering wheel to the right as far as it will go.
- ▶ Position the jack under the jacking point of the air spring carrier, just in front of the front axle.

### Air-sprung rear axle



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- ▶ Position the jack under the jack mounting point on the air spring carrier.

## Removing a wheel



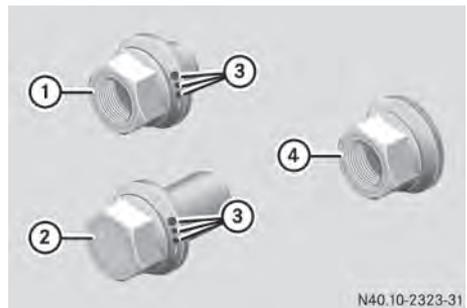
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- ▶ Unscrew the wheel nuts that secure wheel nut cover ①.
- ▶ Remove wheel nut cover ①.
- ▶ Unscrew the remaining wheel nuts.
- ▶ Remove the wheel.

## Installing a wheel

- ⚠ After changing a wheel, check the tire pressure immediately. Observe the notes on operating and road safety.

- ⚠ Do not tighten the wheel nuts with an impact wrench. This could otherwise damage the wheel nuts or wheel studs.



N40.10-2323-31

### Wheel nuts

- ① For single tires with light-alloy wheels
- ② For twin tires with light-alloy wheels
- ③ Wheel nut identification for light-alloy wheels
- ④ With pressure plate for steel wheels

### Before installing a wheel

- ▶ Remove any corrosion and dirt from the contact areas of the wheel hub, rim and wheel nuts.
- ▶ Lightly oil the friction contact surfaces between the pressure plate and the wheel nut.

### Installing a steel wheel

- ▶ Single tires: mount the wheel in place and screw on 2 to 3 wheel nuts.
- ▶ Single tires: screw on the remaining wheel nuts together with the wheel nut cover.
- ▶ Twin tires: mount both the wheels and screw on all remaining wheel nuts.
- ▶ Tighten the wheel nuts in a crosswise pattern, observing the tightening torque while doing so (▷ page 205).
- ▶ Check the tire pressure (▷ page 195).
- ▶ The wheel nuts must be retightened after 30 miles (50 km) (▷ page 180).



Assembly sleeve for twin tires (vehicles with light-alloy wheels)

### Installing a light-alloy wheel

- ▶ Single tires: mount the wheel in place and screw on 2 to 3 wheel nuts.
- ▶ Single tires: screw on the remaining wheel nuts together with the wheel nut cover.
- ▶ Twin tires: place the assembly sleeve (vehicle tool kit) on the wheel bolt before installing the inner wheel.
- ▶ Twin tires: mount both the wheels and screw on 2 to 3 wheel nuts.
- ▶ Twin tires: remove the assembly sleeve.
- ▶ Twin tires: screw on the remaining wheel nuts.

- ▶ Tighten the wheel nuts in a crosswise pattern, observing the tightening torque while doing so (▷ page 205).
- ▶ Check the tire pressure (▷ page 195).
- ▶ The wheel nuts must be retightened after 30 miles (50 km) (▷ page 180).

### Retightening the wheel nuts

#### WARNING

The wheels could come loose if the wheel bolts or wheel nuts are not tightened to the prescribed tightening torque. There is a risk of an accident.

Ensure that the wheel bolts or wheel nuts are tightened to the prescribed tightening torque.

If you are not sure, do not move the vehicle. Contact a qualified specialist workshop and have the tightening torque checked immediately.

- ▶  Check wheel nuts regularly for tightness. Retighten if necessary. Replace damaged wheel nut cover caps and wheel nut covers. Observe the wheel nut tightening torque.

Always observe the instructions and safety notes on "Changing a wheel in the event of a flat tire" (▷ page 177).

Observe the wheel nut tightening torques (▷ page 205).

Retighten the wheel nuts after 30 miles (50 km).

When using new or newly painted wheel rims, check the tightening torque of the wheel nuts again after traveling approximately 620 to 3100 miles (1000 to 5000 km).

- ▶ Retighten the wheel nuts in a crosswise pattern.

On light-alloy wheels, the wheel nuts are not flush with the wheel bolts when tightened.

## Electrical fuses

### Important safety notes

#### WARNING

If you manipulate or bridge a faulty fuse or if you replace it with a fuse with a higher amperage, the electric cables could be overloaded. This could result in a fire. There is a risk of an accident and injury.

Always replace faulty fuses with the specified new fuses having the correct amperage.

The fuse box is located in the electrical equipment compartment behind the driver's seat.

The individual electrical circuits are protected by safety fuses or automatic circuit-breakers.

Blown fuses or defective automatic circuit-breakers must be replaced with equivalent fuses with the fuse ratings recommended in the fuse allocation chart. Fuses with the same fuse rating are the same color.

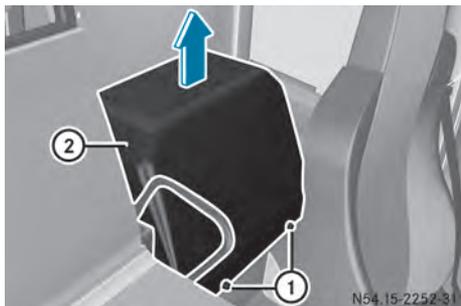
You can obtain further information from any Freightliner service center.

The fuse allocation chart is on the inside of the main fuse carrier cover.

If the new fuse which has been inserted also blows, have the cause traced and rectified at a qualified specialist workshop.

- ▶ If a circuit fails, switch off the consumer equipment and turn the key back in the ignition lock as far as it will go.

### Removing the electrical equipment compartment cover



- ▶ Loosen screws ①.
- ▶ Pull electrical equipment compartment cover ② up and out.

### Layout of the fuses

#### Fuses in FA1 modules

		Consumer	
F1		Drive control (CPC) terminal 30	20 A
F2		Programmable special module (PSM) terminal 15	15 A
		Driver assistance system (VRDU), Lane Keeping Assist camera (MPC) terminal 15	15 A
		Distance sensor control unit (RDF) terminal 15	15 A
F3		Steering wheel angle sensor (SAS) terminal 30	5 A
F4		Driver assistance system (VRDU), Lane Keeping Assist camera (MPC) terminal 30	10 A
		Distance sensor control unit (RDF) terminal 30	10 A
F5		Central gateway (CGW) terminal 30	10 A
F6		12 V basic wiring for radio/telephone/fax terminal 15R	10 A
F7		24 V radio terminal 30	15 A
		Programmable special module (PSM) terminal 30	15 A

		Consumer	
F8		Body manufacturer interface D+ terminal 15/12 V	20 A
F9		Seat heating terminal 15	15 A
F10		Unassigned	-
F11		Unassigned	-
F12		Unassigned	-
F13		Unassigned	-
F14		Unassigned	-

## Fuses in FA2 modules

		Consumer	
F1		Instrument cluster (ICUC) terminal 15	15 A
		EBS control unit brake system terminal 15	15 A
		12 V relay in the battery rack terminal 15	15 A
F2		Air processing control unit (EAPU) terminal 15	15 A
		Instrument cluster (ICUC) terminal 30	10 A
		Modular switch field (MSF) terminal 30	10 A
F3		Driver's door operating unit (FH) terminal 15	15 A
			
			
F4		Exhaust gas after-treatment (ACM), engine management terminal 15/12 V	15 A
		Allison transmission control terminal 15/12 V	15 A

		Consumer	
		Drive control (CPC) terminal 15/12 V	15 A
		Body interface terminal 15/12 V	15 A
F5		Rotating beacon terminal 30	10 A
F6		EBS control unit brake system terminal 30	20 A
F7		EBS control unit brake system terminal 30	20 A
F8		Heating terminal 30	25 A
			
F9		Heating terminal 15	10 A
			
F10		Automatic transmission control unit and control panel terminal 30/12 V	15 A
F11		Central locking system fuse terminal 30	15 A
F12		Unassigned	-
F13		Unassigned	-
F14		Unassigned	-

## Fuses in FA3 modules

		Consumer	
F1		Terminal 50/with immobilizer terminal 30	10 A
F2		Unassigned	-
F3		Level control (CLCS) terminal 30	15 A

		Consumer	
F4		Body interface D+ power supply terminal 15/12 V	20 A
F5		Driver's side door control panel, mirror adjustment, Blind Spot Assist camera system	10 A
F6		Unassigned	-
F7		7-pin trailer ABS power socket	25 A
	or 	Rear area monitoring (ESA-R) terminal 30	10 A
F8		7-pin trailer ABS power socket	10 A
	or 	Rear area monitoring (ESA-R) terminal 15	5 A
F9		Truck Data Center terminal 30	10 A
F10		Auxiliary heating terminal 30	25 A
			
F11		Unassigned	-
F12		Unassigned	-
F13		Unassigned	-
F14		Unassigned	-

## Fuses in FA4 modules

		Consumer	
F1		Auxiliary air conditioning system terminal 15	10 A
F2		Sideguard Assist, rain and light sensor, basic wiring for 12 V socket, 12 V radio, Fleetboard terminal 30/12 V	15 A

		Consumer	
F3		Windshield wiper system terminal 15R	25 A
F4		Air processing control unit (EAPU) terminal 30	20 A
F5		Unassigned	-
F6		Fuel prefilter heating terminal 15	15 A
F7		Body manufacturer terminal 15/12 V	25 A
F8		Body manufacturer terminal 30/12 V	20 A
F9		Unassigned	-
F10		Unassigned	-
F11		Unassigned	-
F12		Unassigned	-
F13		Unassigned	-
F14		Unassigned	-

## Relays in module A31

		Consumer
K01		Body manufacturer interface RP170a
K02		Backing-up interface basic wiring (ESA-R)
K03		Backing-up interface basic wiring (ESA-R)
		or Hill holder
K04		Body manufacturer interface RP170a
K05		Body manufacturer interface RP170a
K06		Unassigned

## Relays in module A32

		Consumer
K01		Rotating beacon
K02		12 V relay, starter terminal 50
K03	 	Basic wiring for 12 V radio/telephone/fax terminal 15R
K04	 	Basic wiring for 12 V radio/telephone/fax terminal 58
K05		Unassigned
K06		Unassigned

## Relays in module A33

		Consumer
K01		Auxiliary air conditioning system
K02		Cab power supply terminal 15/12 V
K03		Body manufacturer interface RP170a
K04		Unassigned
K05		Central locking system
K06		Central locking system

## Relays in module A34

		Consumer
K01		Body manufacturer interface RP170a
K02		Body manufacturer interface RP170a
K03		Body manufacturer interface RP170a
K04		Body manufacturer interface RP170a

		Consumer
K05		Body manufacturer interface RP170a
K06		Body manufacturer interface RP170a

## Diodes in module A42

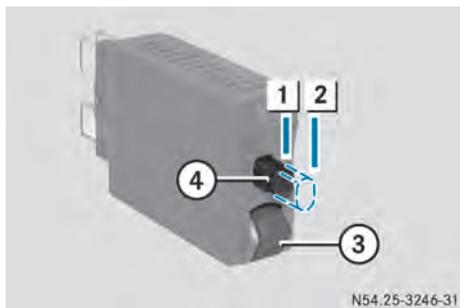
		Consumer
V01		Unassigned
V02		Unassigned
V03		MUX terminal 50
V04		MUX terminal 15R
V05		MUX terminal 15
V06		Unassigned
V07		Unassigned
V08		Unassigned
V09		Unassigned
V10		Unassigned

## Checking and replacing a safety fuse

- ▶ Pull the fuse out of the module using the pliers and carry out a visual inspection.
- ▶ If the fuse wire has melted, replace the blown fuse with a spare fuse.
- ▶ Switch on consumers and check that they function correctly.

If the safety fuse blows again, have the electrical system checked at a qualified specialist workshop.

### Checking and switching on an automatic circuit-breaker



Automatic circuit-breaker

- 1 Automatic circuit-breaker switched on
- 2 Automatic circuit-breaker switched off
- 3 Trip switch
- 4 Pin

If an automatic circuit-breaker is tripped, pin 4 moves to OFF position 2.

- ▶ Pull the automatic circuit-breaker out of the module.
- ▶ Press pin 4 into ON position 1.
- ▶ Press trip switch 3.

If pin 4 moves to OFF position 2, the automatic circuit-breaker is functioning correctly.

If pin 4 does not move to OFF position 2, replace the automatic circuit-breaker.

- ▶ Press pin 4 into ON position 1 and refit the circuit-breaker.
- ▶ Switch on consumers and check that they function correctly.

If the automatic circuit-breaker is tripped again, have the electrical system checked at a qualified specialist workshop.

### Charging the compressed-air system

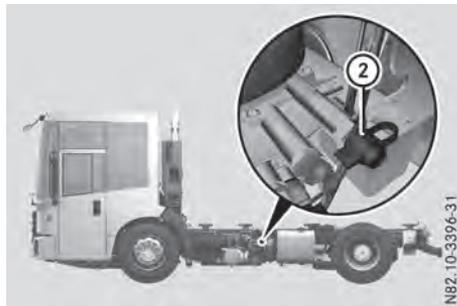
- i The supply pressure of the external compressed-air source must be within the pressure range specified for an external compressed-air source. Otherwise, it cannot be guaranteed that you will be able to fill all the pressure circuits.

Bear in mind that the compressed air does not pass through the compressed-air dryer if you fill the compressed-air system via con-

nection 28 on the electronic air processing unit.

For this reason, the air from the external compressed-air source must be clean and dry. Otherwise, compressed-air system components could be damaged.

System-dependent reservoir pressures can be found in the technical data section (▶ page 205).



Example: connection 28 on the electronic compressed-air supply unit (on inside of chassis frame)

If you fill the compressed-air system via connection 28 on the electronic compressed-air supply unit, the air suspension is also filled.

- i The electronic compressed-air supply unit contains the following components in one unit:

- Pressure regulator
- Compressed-air dryer
- Multiple-circuit safety valve
- Pressure limiting valve
- Control unit

Before towing, check that the spring-loaded cylinders of the parking brake are released. If the compressed-air supply is insufficient, release the spring-loaded cylinders manually (▶ page 190).

## Jump-starting, tow-starting and towing away

### Jump-starting

#### Important safety notes

##### WARNING

Battery acid is caustic. There is a risk of injury.

Avoid contact with skin, eyes or clothing. Do not inhale gases released from the battery. When carrying out maintenance work on the battery, wear acid-resistant protective clothing, particularly protective eyewear, protective gloves and an apron. Do not lean over the battery. Keep the batteries out of the reach of children.

If you come into contact with battery acid, observe the following:

- immediately rinse battery acid off skin thoroughly with plenty of clean water and seek immediate medical attention.
- if you get battery acid in your eyes, rinse them thoroughly with plenty of clean water immediately. Consult a doctor without delay.

##### WARNING

During charging and jump-starting, explosive gases can escape from the battery. There is a risk of an explosion.

Particularly avoid fire, open flames, creating sparks and smoking. Ensure there is sufficient ventilation while charging and jump-starting. Do not lean over a battery.

**!** Observe the following notes. Batteries or electronic component parts in the vehicle can otherwise be damaged:

- Do not use rapid charging equipment for starting assistance.
- If you use mobile charging equipment (batteries with mains adapter), disconnect the mains plug prior to the starting assistance.
- Only receive starting assistance from vehicles with a 24 or 12 V system.

- If starting assistance is provided from vehicles with a 12 V system, wait about 15 minutes until the starter battery is partially charged.
- Use jumper cables protected from polarity reversal with a cable cross-section of approximately 35 – 50 mm<sup>2</sup> and insulated terminal clamps.
- A discharged battery can freeze if outside temperatures fall below 14 °F (-10 °C). In this case, do not start the engine. Let the battery thaw first.

**!** Do not connect the negative terminal clamp of the jump lead to the vehicle frame. Otherwise, engine or transmission components can be damaged.

**!** When removing the jumper cable, let the engine of the vehicle receiving power run at idle speed. This will prevent damage to the vehicle electronics.

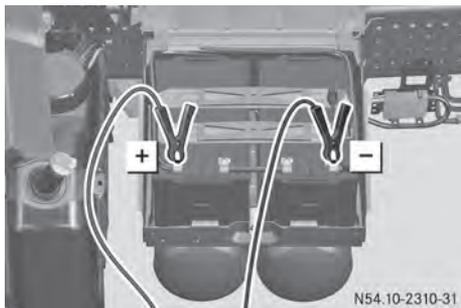
#### General notes

Observe the safety notes and protective measures when handling the battery (▷ page 166). After jump-starting, have the batteries checked at a qualified specialist workshop.

- ▶ Make sure that the vehicles are not touching.
- ▶ Apply the parking brake.
- ▶ Switch off all electrical consumers.
- ▶ Turn the key back in the ignition lock as far as it will go.

Observe that different batteries must be used when jump starting with a 12 V voltage source depending whether starting assistance is being given or received.

## Receiving starting assistance



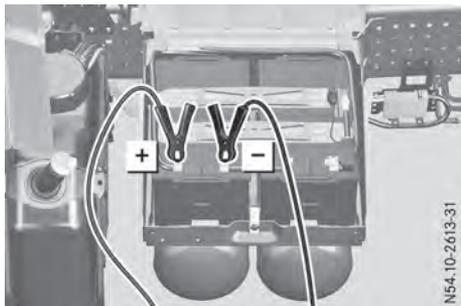
Example connection of an external 24 V power source

### Connecting jumper cables 24 V

- ▶ Remove the battery compartment cover (▷ page 167).
- ▶ First, connect the positive terminal clamp of the jump lead to the positive terminal of the other vehicle's battery and then to the **+** positive terminal of the starter battery.
- ▶ First, connect the negative terminal clamp of the jump lead to the negative terminal of the other vehicle's battery and then to the **-** negative terminal of the starter battery.
- ▶ Assisting vehicle: run the engine at a high speed.
- ▶ Start the engine and leave it running at idling speed.

### Disconnecting jumper cables 24 V

- ▶ First, disconnect the negative terminal clamps of the jump lead from the negative terminals.
- ▶ Remove the positive terminal clamps of the jump lead from the positive terminals.



Example connection of an external 12 V power source

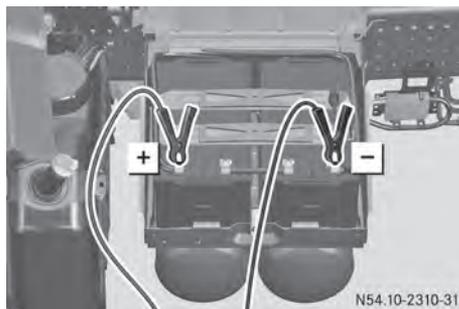
## Connecting jumper cables 12 V

- ▶ Remove the battery compartment cover (▷ page 167).
- ▶ First, connect the positive terminal clamp of the jump lead to the positive terminal of the other vehicle's battery and then to the **+** positive terminal of the starter battery.
- ▶ First, connect the negative terminal clamp of the jump lead to the negative terminal of the other vehicle's battery and then to the **-** negative terminal of the starter battery.
- ▶ Assisting vehicle: run the engine at a high speed.
- ▶ Switch on the ignition and wait approximately 15 minutes, so the battery can be partially charged and a voltage equalization can take place between the batteries.
- ▶ Start the engine and leave it running at idling speed.

### Disconnecting jumper cables 12 V

- ▶ First, disconnect the negative terminal clamps of the jump lead from the negative terminals.
- ▶ Remove the positive terminal clamps of the jump lead from the positive terminals.

## Giving starting assistance



Example connection of an external 24 V power source

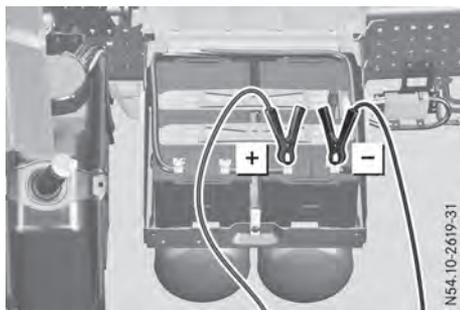
### Connecting jumper cables 24 V

- ▶ Remove the battery compartment cover (▷ page 167).
- ▶ First, connect the positive terminal clamp of the jump lead to the positive terminal of the vehicle's own battery and then to the **+** positive terminal of the other vehicle's battery.

- ▶ First, connect the negative terminal clamp of the jump lead to the negative terminal of the vehicle's own battery and then to the negative terminal of the other vehicle's battery.
- ▶ Start the engine and let it run at a higher speed.
- ▶ Start the engine of the other vehicle.

#### Disconnecting jumper cables 24 V

- ▶ First, disconnect the negative terminal clamps of the jump lead from the negative terminals.
- ▶ Remove the positive terminal clamps of the jump lead from the positive terminals.



Example connection of an external 12 V power source

#### Connecting jumper cables 12 V

- ▶ First, connect the positive terminal clamp of the jump lead to the positive terminal of the vehicle's own battery and then to the positive terminal of the other vehicle's battery.
- ▶ First, connect the negative terminal clamp of the jump lead to the negative terminal of the vehicle's own battery and then to the negative terminal of the other vehicle's battery.
- ▶ Start the engine and let it run at a higher speed.
- ▶ Start the engine of the other vehicle.

#### Disconnecting jumper cables 12 V

- ▶ First, disconnect the negative terminal clamps of the jump lead from the negative terminals.
- ▶ Remove the positive terminal clamps of the jump lead from the positive terminals.

#### Notes on tow-starting and towing away

Specialist knowledge beyond the scope of these Operating Instructions is required for tow-starting and towing the vehicle away. Only have your vehicle towed away or tow-started by a professional towing/recovery company. Only in exceptional cases, e.g. when leaving areas of danger, should the vehicle be towed with the propeller shaft installed.

- ▶ Observe the general notes on towing away, except the information on removal of the propeller shaft.

**i** Information on towing away and recovery can be found on the Internet at: <https://xentryportal.i.daimler.com/wps/portal/>

You can obtain further information from a Freightliner service center.

#### Maneuvering/tow-starting and towing away

#### Important safety notes

##### **⚠ WARNING**

If the distance control assistant is switched on, the vehicle accelerates or brakes automatically in certain situations. If you use the vehicle as working machinery with distance control assistant switched on, the vehicle may accelerate or brake unexpectedly. There is a risk of an accident.

Always switch off the distance control assistant in this or similar situations.

##### **⚠ WARNING**

If Active Brake Assist is activated while you are towing your vehicle or using it, e.g. as working machinery, the vehicle may brake automatically. The wheels could lose grip. There is a risk of an accident.

Always deactivate Active Brake Assist in this or similar situations.

**⚠ WARNING**

If the engine is not running, the hydraulic power steering and the compressed-air supply are inoperative. To steer, you will require considerably more force. The spring-loaded parking brake can activate if there is a loss of compressed air and the vehicle may then brake uncontrollably. You could therefore lose control of the vehicle. There is a risk of an accident.

Always use a tow bar. Always ensure the compressed-air supply using an external compressed-air source.

- !** Attachments and bodies can affect the vehicle height and breadth. Do not exceed the permitted vehicle height and observe the legal requirements for the country you are currently in.

Fold in the wind deflector if the vehicle is raised at the rear when towing away.

Drive with care and anticipate road and traffic conditions. Observe the maximum clearance of underpasses.

- !** When towing/tow-starting, please observe the following:

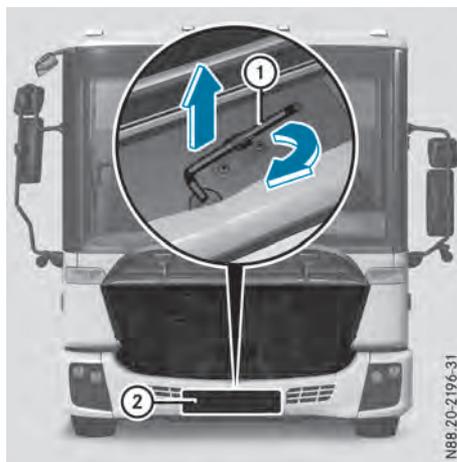
- If the engine is not running, have the propeller or drive shaft removed. Otherwise, the transmission may be damaged.
- If the engine is not running and the spring-loaded parking brake is activated as a result of a loss of compressed air, the brakes may overheat and be damaged. Charge the compressed-air system or disengage the spring-loaded parking brake manually.
- For vehicles with air suspension, check the driving level during towing/tow-starting and correct it if necessary. Otherwise, parts of the vehicle or the air suspension could be damaged.
- Before towing, switch off Active Brake Assist. Otherwise, Active Brake Assist could brake the vehicle while it is being towed. This could cause the brakes to overheat and be damaged.

If you transport the vehicle on a low-loader, the permissible vehicle height may be exceeded. Pay attention to the headroom clearance of buildings, e.g. bridges.

Before towing away, agree on a clear signal with the towing vehicle driver. Both you and the towing vehicle driver must adapt the driving style used to the more difficult conditions.

Information on charging the compressed-air system using an external compressed-air source can be found under "Charging the compressed-air system" (▷ page 185).

Information on releasing the spring-loaded parking brake can be found under "Releasing the spring-loaded parking brake" (▷ page 190).

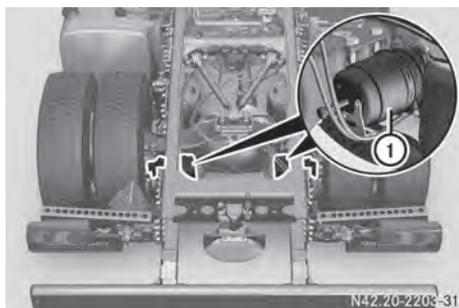
**Coupling jaw****Coupling jaw**

Use the front coupling jaw for maneuvering, tow-starting and towing away.

- ▶ Open the maintenance flap (▷ page 161).
- ▶ Push license plate holder ② down slightly and tilt it forwards.
- ▶ Swing coupling pin ① approximately 90° backwards and pull it up and out.
- ▶ Attach the towbar.
- ▶ Push coupling pin ① down through the eyelet of the towing bar.
- ▶ Swing coupling pin ① approximately 90° forwards and engage it in the locking mechanism.

## Releasing the spring-loaded parking brake

### Arrangement of the spring-loaded parking brake cylinders



- ① Spring-loaded parking brake cylinder (example)

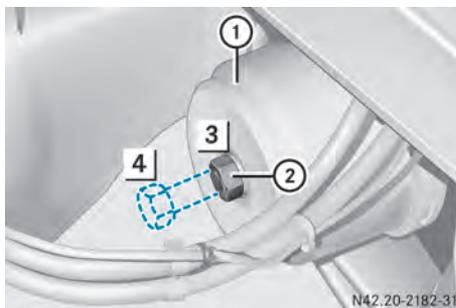
The arrangement of the spring-loaded parking brake cylinders on the rear axle depends on the axle equipment.

Positioning on the rear axle(s)

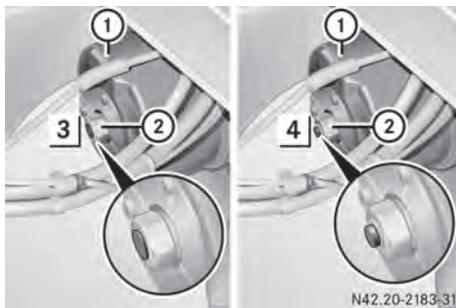
	1	2
4x2	x	-
6x4	x	x

### Manually releasing the spring-loaded parking brake cylinder

**!** Release the release screw with a maximum of 52 lb-ft (70 Nm). Do not use an impact wrench. You could otherwise damage the spring-loaded brake cylinder.



Spring-loaded parking brake cylinder with release screw



Spring-loaded parking brake cylinder with release screw and release indicator

- ① Spring-loaded parking brake cylinder
- ② Release screw
- ③ Drive position
- ④ Released position

If there is insufficient reservoir pressure to release the parking brake, release the spring-loaded parking brake cylinders mechanically in the event of an emergency.

The vehicles may be fitted with different types of spring-loaded parking brake cylinders depending on the axle, e.g. spring-loaded parking brake cylinders with a release screw or with a release indicator. Release all the spring-loaded parking brake cylinders on the vehicle.

- ▶ Use chocks to safeguard the vehicle against rolling away.
- ▶ Turn release screw ② of spring-loaded parking brake cylinder ① anti-clockwise until the stop in release position ④.

## Moving the spring-loaded parking brake cylinder to the driving position

---

**!** Tighten the release screw with a maximum of 26 lb-ft (35 Nm). Do not use an impact wrench. You could otherwise damage the spring-loaded brake cylinder.

Reset all spring-loaded parking brake cylinders to the drive position.

- ▶ Charge the brake circuit until the cut-off pressure is reached.
- ▶ Swing the parking brake lever as far as it will go to the released position.
- ▶ Turn release screw ② of spring-loaded parking brake cylinder ① clockwise to driving position ③.
- ▶ Tighten release screw ②.

## Useful information

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific deviations are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops: (> page 22).

## Important safety notes

### Operating and road safety

#### Regular checking of wheels and tires

Tires are of particular importance to the operating and road safety of the vehicle.

Regularly check the following:

- tire pressure
- tire tread
- tire condition

A tire dealer, a qualified specialist workshop or any Freightliner service center will be able to provide further information about the:

- tire load-bearing capacity (LI, Load Index)
- tire speed rating (maximum permissible speed of the tire)
- tire age
- causes and consequences of tire wear
- measures to be taken in the event of tire damage
- types of tire for specific regions, areas of operation or conditions of vehicle use
- interchangeability of tires, etc.

## Tire pressures

### WARNING

Underinflated or overinflated tires pose the following risks:

- the tires may burst, especially as the load and vehicle speed increase.
- the tires may wear excessively and/or unevenly, which may greatly impair tire traction.
- the driving characteristics, as well as steering and braking, may be greatly impaired.

There is a risk of an accident.

Follow recommended tire inflation pressures and check the pressure of all the tires including the spare wheel:

- monthly, at least
- if the load changes
- before beginning a long journey
- under different operating conditions, e.g. off-road driving

If necessary, correct the tire pressure.

### WARNING

The tire temperature and pressure increase when the vehicle is in motion. If you reduce the tire pressure in hot tires are warm, the tire pressure will be too low when the tires are cold. Tire pressure that is too low can cause the tire to burst, in particular if the vehicle is heavily laden or at high speeds. There is a risk of an accident.

Never reduce the tire pressure in hot tires. Observe the prescribed tire pressures.

Before starting your journey, check the specified tire pressures while the tires are cold.

If the tire pressure is too low, it leads to:

- excessive build-up of heat in the tires
- increased tire wear
- altered driving stability
- increased fuel consumption

Excessive tire pressure leads to:

- an increased braking distance
- a deterioration in tire traction
- increased tire wear

The valve caps on the tire valves protect the valve cores from moisture and dirt. Always screw the valve caps tightly onto the tire valves.

In the event of repeated pressure loss in the tires, external damage or leaking tire valves may be the cause. Check the condition of the tires regularly.

Further information on tire pressure can be found in the "Tire pressure" section (▷ page 195).

## Tire tread

### WARNING

If there is insufficient tire tread, the tire traction decreases. The tire tread is no longer able to dissipate water. This increases the risk of hydroplaning when the road surface is wet, particularly when the vehicle's speed is not adapted to the road conditions. There is a risk of an accident.

When the tire pressure is too high or too low, tires may wear differently at different points on the tire tread. Therefore, regularly check the tire tread depth and the condition of the tread across the whole width of all tires.

Minimum tire tread depth on:

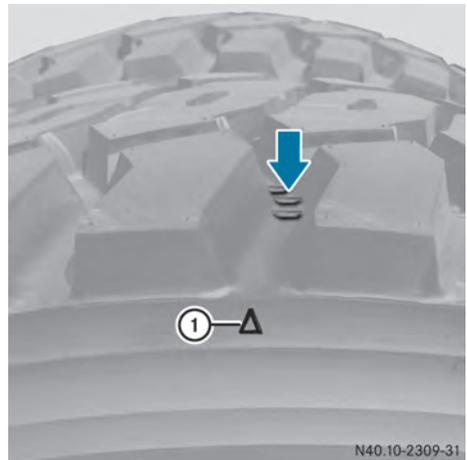
- Summer tires: 3 mm
- M+S tires: 4 mm

For safety reasons, have the tires replaced before they reach the legally prescribed minimum tire tread depth.

### WARNING

There is a danger of hydroplaning occurring, even if you are driving slowly and your tires have sufficient tread depth, depending on the depth of water on the road. There is a risk of an accident.

For this reason, avoid tire ruts and brake carefully.



- ① Example: tire tread wear indicator (summer tires)

A specified minimum tread depth is a legal requirement for all tires. Observe the legal requirements for the country you are currently in.

The less tire tread depth remaining, the poorer the road grip and handling characteristics of the vehicle, particularly if the road surface is wet or snow-covered.

A tire has reached the minimum tread depth when the tread wear indicator (arrow) is flush with the tire tread.

For safety reasons, have the tires replaced before the legally specified minimum tread depth is reached.

## Tire condition

### Important safety notes

#### WARNING

Damaged tires can cause tire inflation pressure loss. As a result, you could lose control of your vehicle. There is a risk of accident.

Check the tires regularly for signs of damage and replace any damaged tires immediately.

Before starting your journey, check the tire condition for:

- external damage
- foreign objects in the tire tread

- foreign objects between the tires (on vehicles with twin tires)
- cracks or bulges
- uneven tread wear or excessive wear on one side

### Tire damage

Tire damage can, for example, be caused by:

- the operating conditions of the vehicle
- tire aging
- curbs
- foreign objects
- insufficient or excessive tire pressure
- weather conditions and environmental factors
- contact with oil, grease, fuel

### Tire age



Tires age, even if they are used infrequently or not at all. Operating and road safety diminish with the age of the tire. For this reason have tires more than six years old checked and, if necessary, replaced at a qualified specialist workshop. This also applies to the spare wheel.

Date of manufacture ① informs you about the age of a tire. The first and second digits refer to the week of manufacture, starting with "01" for the first calendar week of the year. The third and fourth digits refer to the year of manufacture. A tire that is marked "3818", for example, was thus manufactured in the 38th calendar week of 2018.

## Tire load-bearing capacity, tire speed rating and tire types

### ⚠ WARNING

Exceeding the stated tire load-bearing capacity and the approved maximum speed could lead to tire damage or the tire bursting. There is a risk of accident.

Therefore, only use tire types and sizes approved for your vehicle model. Observe the tire load rating and speed rating required for your vehicle.

In particular, observe the country-specific permissible tire specifications. These requirements may stipulate a specific tire type for your vehicle. In addition, the use of specific tire types may be advisable for certain regions and areas of operation. A tire dealer, a qualified specialist workshop or any Freightliner service center will be able to provide further information about tires.

## Replacing the tires and retreaded tires

### Replacing tires

If replacing the standard tires of your vehicle, use only the tire and wheel rim sizes approved for your vehicle type. A tire dealer, qualified specialist workshop or any Freightliner service center will be able to provide further information.

After replacing your tires, carry with you the vehicle's type approval for the new tire and wheel rim size as well as the manufacturer's certification showing that the tires may be used on the vehicle. Observe the legal requirements for the country you are in. Any Freightliner service center can provide information on obtaining a manufacturer's certificate.

### Retreaded tires

Daimler Trucks North America recommends that you only use tires and wheels which have been tested and approved by Mercedes-Benz specifically for your vehicle.

## Balancing tires

Daimler Trucks North America recommends that you only use clip-on and adhesive wheel balance weights which have been tested and

approved by Mercedes-Benz specifically for your vehicle to balance the tires.

Adding balancing granulate, balancing beads or balancing gel to the tires can damage the inliner of the tire.

## Tire pressures

### Important safety notes

#### WARNING

Underinflated or overinflated tires pose the following risks:

- the tires may burst, especially as the load and vehicle speed increase.
- the tires may wear excessively and/or unevenly, which may greatly impair tire traction.
- the driving characteristics, as well as steering and braking, may be greatly impaired.

There is a risk of an accident.

Follow recommended tire inflation pressures and check the pressure of all the tires including the spare wheel:

- monthly, at least
- if the load changes
- before beginning a long journey
- under different operating conditions, e.g. off-road driving

If necessary, correct the tire pressure.

#### WARNING

The tire temperature and pressure increase when the vehicle is in motion. If you reduce the tire pressure in hot tires are warm, the tire pressure will be too low when the tires are cold. Tire pressure that is too low can cause the tire to burst, in particular if the vehicle is heavily laden or at high speeds. There is a risk of an accident.

Never reduce the tire pressure in hot tires. Observe the prescribed tire pressures.

For every 18 °F (10 °C) change in air temperature, the tire pressure changes by around 30

to 40 kPa (0.3 to 0.4 bar/4.4 to 5.8 psi). Bear this temperature-related change in tire pressure in mind when checking tire pressures indoors, where the temperature may be higher than the outside temperature.

Example:

- room temperature is approximately 68 °F (20 °C).
- outside temperature is approximately 32 °F (0 °C).
- set the tire pressure to around 60 to 80 kPa (0.6 to 0.8 bar/8.7 to 11.6 psi) above that prescribed in the tire pressure table.

The tire pressures are specified according to E.T.R.T.O. standards and may deviate from the manufacturer's specifications.

Also observe the general notes in the "Operating and road safety" section (▷ page 192).

### Determining tire pressures

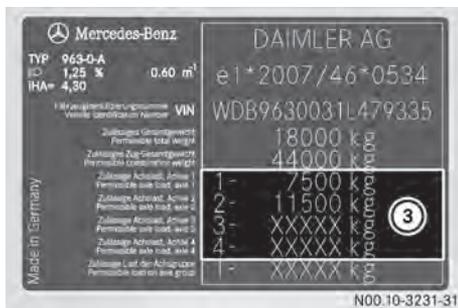
 Correct the tire pressures for each axle on the vehicle.



Example: tire size and load bearing index

► Read off tire size ① and load bearing index ② on the tire.

If load bearing index ② is comprised of two numbers, the first number before the "/" is for single tires and the second number, after the "/", is for twin tires.



Example: permissible axle load

- ▶ Determine permissible axle load ③ by checking the vehicle identification plate.
- ▶ Look for tire size ① in the tire pressure list.
- ▶ Select the tire pressure that corresponds to the tire type (> page 196).
- ▶ Search for load bearing index ② that corresponds to the tire type next to the tire size in the tire pressure list.
- ▶ Find maximum permissible axle load ③ in the tire pressure list and read off the tire pressure.

## Tire pressure table

### Single tires front axle: 315/80 R 22.5 tires

Load bearing index	Tire code	Axle load	Air pressure
156/150	QK3 F18L1790 KMAX S	17640 lbs	850 kPa (8.5 bar/123 psi)
LRL	QK3 F18J1680	17640 lbs	770 kPa (7.7 bar/112 psi)
		19840 lbs	900 kPa (9.0 bar/131 psi)

### Twin tires rear axle: 315/80 R 22.5 tires

Load bearing index	Tire code	Axle load	Air pressure
156/150	QK3 F18L7790 KMAX D	23150 lbs	650 kPa (6.5 bar/94 psi)
LRL	QK3 F18J1680	23150 lbs	590 kPa (5.9 bar/86 psi)

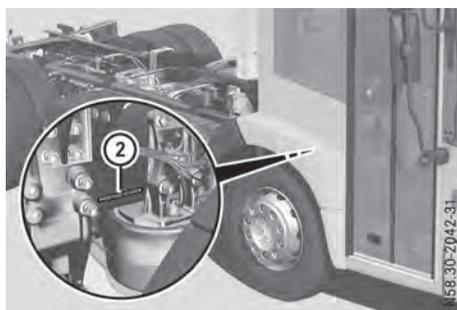
**Useful information**

These Operating Instructions describe all the models and standard and optional equipment of your vehicle that were available at the time of going to print. Country-specific deviations are possible. Bear in mind that your vehicle may not be equipped with all the functions described. This also applies to safety-relevant systems and functions.

Read the information on qualified specialist workshops: (> page 22).

**Vehicle identification plate/axle loads**

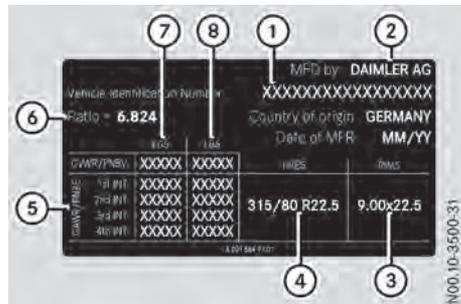
**Vehicle identification plate and vehicle identification number (VIN)**



Vehicle identification number and vehicle identification plate (example: right-hand side of vehicle)

Vehicle identification plate ① is located on the door sill on the co-driver's side. Vehicle identification number (VIN) ② is stamped on the chassis frame in the right wheel housing.

**Information on the vehicle identification plate**

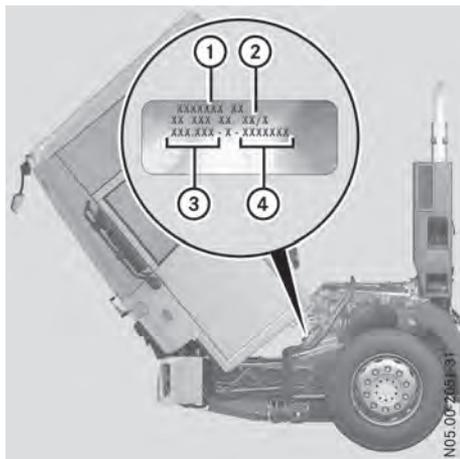


Vehicle identification plate

- ① Vehicle identification number (VIN)
- ② Vehicle manufacturer (Daimler AG)
- ③ Permissible wheel rim size
- ④ Permitted tire size
- ⑤ Permissible axle loads of axles 1 to 4 (kg/lbs)
- ⑥ Rear axle ratio
- ⑦ Permissible gross weight (kg)
- ⑧ Maximum permissible gross weight (lbs)

You will find the technically permissible gross vehicle combination weight on the vehicle identification plate or in the COC documents. If you require further assistance, consult a Freightliner service center.

## Engine data plate



- ① Manufacturer
- ② Engine type
- ③ Engine model series
- ④ Engine number

The engine data plate is located at the front end of engine, below the alternator.

## Service products

### Important safety notes

#### WARNING

Service products may be poisonous and hazardous to health. There is a risk of injury.

Comply with instructions on the use, storage and disposal of service products on the labels of the respective original containers. Always store service products sealed in their original containers. Always keep service products out of the reach of children.

- !** Special additives (except approved fuel additives) are neither required nor approved for use with approved service products. Additives may cause damage to major assemblies. Therefore, do not mix any additives with service products. You are responsible for the results of using fuel additives.

#### Environmental note

Dispose of service products in an environmentally responsible manner.

Service products are:

- Windshield washer concentrate
- Fuels (e.g. diesel)
- Lubricants (e.g. engine oil, transmission oil, grease)
- Hydraulic fluids
- Coolant
- DEF, reduction agent for exhaust gas after-treatment

Approved service products fulfill the highest quality standards and are documented in the Mercedes-Benz Specifications for Service Products. For this reason, only use approved service products for your vehicle. Information about approved service products is available from any Freightliner service center.

You can recognize service products approved by Mercedes-Benz by the following inscription on the container:

- MB-Freigabe (e.g. MB-Freigabe 228.61)  
or
- MB-Mobil Delvac (e.g. MB-Mobil Delvac 228.61)

Other labels and recommendations relating to the quality or indicating that the product meets a certain specification are not necessarily approved by Mercedes-Benz. You can obtain further information from any Freightliner service center.

- i** You can obtain information about service products that have been tested by Mercedes-Benz and approved for your vehicle on the Internet at: <http://bevo.mercedes-benz.com/>

The specification and availability of lubricants may vary. Some lubricants are no longer available, especially for older vehicles. Information is available from any Freightliner service center.

## Engine oils

### Notes on engine oils

- ! Use only engine oils with the specified grade.



Observe the safety notes on service products (> page 198).

The quality of the engine oil is decisive for the function and service life of an engine. After extensive tests, Mercedes-Benz approves engine oils that correspond to the current technical standard.

**Vehicles with a diesel engine:** only use engine oils which correspond to Mercedes-Benz Specifications for Service Products, Sheet No. 228.61.

Engine oils according to Sheet No. 228.61 have a higher quality standard and have a favorable effect on:

- length of oil change interval
- engine wear
- fuel consumption
- exhaust emissions

- i You can find information on the quality grade, e.g. Sheet No. 228.61, and the viscosity, e.g. SAE class 5W-30, on the oil container.

Engine oil according to Sheet No. 228.61 and SAE class 5W-30 will be filled before delivery.

### Scope of use

Multi-grade engine oils that comply with Sheet No. 228.61 can be used all year round. Depending on fuel quality (sulfur content), oil change intervals must be shortened.

## Oil change

- ! If engine oils of different grades are mixed, the engine oil change intervals are shortened compared with engine oils of the same quality.

Therefore, only mix engine oils of different grades in exceptional circumstances. Set the sheet number of the engine oil of the lower grade under [Engine oil grade](#) in order to avoid damage to the engine.

- ! If the SAE class (viscosity) of the engine oil used is not suitable for continually low outside temperatures below  $-4^{\circ}\text{F}$  ( $-20^{\circ}\text{C}$ ) this could cause engine damage.

The specified temperatures of the SAE class always refer to freshly added oil. Engine oil ages during driving due to soot and fuel residue. This impairs the characteristics of the engine oil, particularly at low outside temperatures.

If the outside temperature is under  $-4^{\circ}\text{F}$  ( $-20^{\circ}\text{C}$ ), Mercedes-Benz strongly recommends using engine oils of SAE class 5W-30 or 0W-30.

Use only all-season oils.

Oil change intervals are dependent on the following:

- the operating conditions of the vehicle
- the grade of the engine oil used
- ▶ Select the SAE class of the engine oil in accordance with outside temperatures. Information on the SAE classes and outside temperature ranges can be found in Sheet No. 224.2 in the Mercedes-Benz Specification for Service Products.

The maximum oil change interval can only be achieved by using engine oils of particularly high quality in accordance with Sheet No. 228.61 of the Mercedes-Benz Specifications for Service Products. The on-board computer automatically shows the date of the next oil change.

### Adding/refilling engine oil

- ! If too much oil is added there is a danger of damage to the catalytic converter or engine. Have excess oil siphoned off.

When refilling, Daimler Trucks North America recommends that you only use engine oil of

the same grade and SAE class as the oil filled at the last oil change.

Check the oil level in the on-board computer (▷ page 80) before you add the oil (▷ page 163).

### Miscibility of engine oils

The benefits of high-quality engine oils are diminished if you mix them.

Engine oils are differentiated according to:

- engine oil brand
- quality grade (Sheet No.)
- SAE viscosity class

If, in exceptional circumstances, the type of engine oil currently used is not available, another engine oil approved for Mercedes-Benz may be used.

### Setting the oil grade

**!** If the on-board computer shows the  symbol and you refill with the quantity of oil displayed in the on-board computer, note the following:

- If you refill with an engine oil of a lower quality, set the lower quality (Sheet no.) in the on-board computer.
  - Do not set the higher quality (Sheet no.) in the on-board computer if you add an engine oil of a higher quality.
- ▶ Set the Sheet No. (quality grade) of the engine oil in the on-board computer (▷ page 82).

### Transmission oils

#### General notes

**!** When changing the oil, if you replace the synthetic oil with a mineral transmission oil, you may damage the assembly. Before the oil change, check whether the use of a mineral transmission oil is permitted. Information is available from any Freightliner service center.

Only use:

- transmission oils which comply with Sheet No. 236.91 for automatic transmissions, see on-board computer

At the factory, drive axles, transmission and the PTO shaft gear are filled with a high-quality synthetic oil.

### Transmission oil grade

The quality grade (Sheet No.) of the transmission oil used can be checked and changed in the on-board computer (▷ page 82).

### Coolant

#### WARNING

If antifreeze comes into contact with hot components in the engine compartment, it may ignite. There is a risk of fire and injury. Let the engine cool down before you add antifreeze. Make sure that antifreeze is not spilled next to the filler neck. Thoroughly clean the antifreeze from components before starting the engine.

A coolant that ensures anti-corrosion/antifreeze protection and other important protective effects is added at the factory.

Only use coolants specified in Sheet No. 235.5.

The coolant is a mixture of water and corrosion inhibitor/antifreeze.

The corrosion inhibitor/antifreeze in the coolant has the following properties:

- heat transfer
- anti-corrosion protection
- cavitation protection (protection against pitting)
- antifreeze protection
- raising the boiling point

Leave the coolant/antifreeze in the engine cooling system all year round – even in countries with high outside temperatures.

Check the corrosion inhibitor/antifreeze concentration in the coolant every six months.

Renew the coolant every 3 years.

Only use approved antifreeze/corrosion inhibitor according to Sheet No. 235.5. This prevents damage to the engine cooling system and engine.

When renewing the coolant, ensure that it contains 50% antifreeze/corrosion inhibitor by vol-

ume. This corresponds to antifreeze protection down to  $-35\text{ }^{\circ}\text{F}$  ( $-37\text{ }^{\circ}\text{C}$ ).

Do not exceed 55% by volume (antifreeze down to approximately  $-49\text{ }^{\circ}\text{F}$ ) ( $-45\text{ }^{\circ}\text{C}$ ). The heat dissipation and antifreeze may otherwise be negatively affected.

If there is a loss of coolant, do not top it up by using only water, also add an approved corrosion inhibitor/antifreeze agent.

The water in the coolant must meet certain requirements which are often met by drinking water. The water must be treated if its quality does not meet the required standards.

Observe the Mercedes-Benz Specifications for Service Products, Sheet No. 310.1.

Further information about operational and road safety can be obtained from any Freightliner service center.

## Refrigerant

### Important safety notes

Your vehicle's climate control system is filled with R-134a refrigerant and contains fluorinated greenhouse gas.

The instruction label regarding the refrigerant type used can be found behind the maintenance flap.

**!** Only R-134a refrigerant as well as PAG oil approved by Daimler Trucks North America may be used. The approved PAG oil must not be mixed with any PAG oil that is not approved for R-134a coolant. Otherwise, the climate control system may be damaged.

Maintenance work such as refilling refrigerant or replacing components may only be carried out at a qualified specialist workshop. All applicable regulations as well as SAE standard J639 must be adhered to.

Always have all work on the climate control system carried out at a qualified specialist workshop.

### Refrigerant instruction label



Example: refrigerant instruction label

- ① Symbols for hazard and service information
- ② Refrigerant filling capacity
- ③ CO<sub>2</sub> equivalent of the refrigerant used
- ④ Applicable standards
- ⑤ PAG oil part number
- ⑥ GWP (global warming potential) of the refrigerant used
- ⑦ Refrigerant type

Symbols ① advise you about:

- possible dangers
- having service work carried out at a qualified specialist workshop

### Notes on fuel grades

#### **!** WARNING

If you mix diesel fuel with gasoline, the flash point is lower than that of pure diesel fuel. When the engine is running, exhaust system components could overheat without being noticed. There is a risk of fire.

Never refuel with gasoline. Never mix gasoline with diesel fuel.

Even small amounts of the wrong fuel may cause damage to the fuel system, engine and emission control system.

- !** Refuel only with commercially available vehicle diesel fuel that conforms to the European standard EN 590 (or equivalent national fuel standards).
- !** **Vehicles with diesel particulate filter:** in countries without sulfur-free diesel fuel,

refuel using only low-sulfur diesel fuel with a sulfur content less than 50 ppm. Otherwise, the emission control system could be damaged.



Compatibility labels for all vehicles with a diesel engine

For diesel engines, you will find the compatibility labels on the tensioning strap of the fuel tank and on the fuel pump or on the fuel pump nozzle of the filling station.

- **B7:** for diesel fuel with a maximum of 7 % bio-diesel (fatty acid methyl ester) by volume
- **XTL:** for paraffinic diesel fuel in accordance with EN 15940

#### Notes on low outside temperatures

Refuel your vehicle at the beginning of the winter until the tank is as full as possible with winter diesel.

Before switching to winter diesel, the fuel tank must be as empty as possible. Keep the fuel level low when refueling the vehicle with winter diesel for the first time, e.g. reserve level. The next time you refuel the vehicle, the fuel tank may be filled up to a normal level again. You can obtain further information on fuel:

- at a filling station
- at a qualified specialist workshop

#### Diesel fuels in accordance with EN 590

#### Important safety notes

##### WARNING

Fuel is highly flammable. Improper handling of fuel creates a risk of fire and explosion. Avoid fire, open flames, smoking and creating sparks under all circumstances. Switch off the engine and, if applicable, the auxiliary heating before refueling.

- ❗ Filter the fuel before transferring it to the vehicle if you are refueling the vehicle from barrels or containers.

This will prevent malfunctions in the fuel system due to contaminated fuel.

- ❗ Only refuel using commercially available, sulfur-free diesel fuel that conforms to the European standard EN 590 as of 2010, et seq. (max. 0.001% sulfur by weight).

The following fuel types are not permitted:

- sulfurous fuel with a sulfur content greater than 0.001% by weight
- marine diesel fuel
- aviation turbine fuel
- heating oils
- FAME fatty acid methyl ester (bio-diesel fuel) by volume

These fuel types cause irreversible damage to the engine and exhaust gas aftertreatment, as well as also significantly reducing the expected service life.

- ❗ A high fuel sulfur content accelerates the aging process of the engine oil and can damage the engine and exhaust system.

#### Fuel grade

Before delivery, the fuel sulfur content is set to <0.001% sulfur by volume (10 ppm).

Certain countries have diesel fuel with varying sulfur content. Diesel fuel with low sulfur content is sold in certain countries under the name "Euro diesel".

Information regarding the current country-specific sulfur content of fuel can be obtained from any Freightliner service center or found on Sheet No. 136.2. of the Mercedes-Benz Specification for Service Products.

#### Diesel fuels at low temperatures

##### WARNING

If you heat fuel system components, e.g. with a hot-air gun or open flame, these components could be damaged. This can cause fuel to escape and ignite. Depending on the type of damage, fuel may also not escape until the engine is running. There is a risk of fire and explosion.

Never heat fuel system components. Contact a qualified specialist workshop to rectify the malfunction.

At low outside temperatures, paraffin separation may cause the flow properties of the diesel fuel to be insufficient.

To prevent operating problems, diesel fuel with improved flow properties is available in the winter months.

The vehicle may be equipped with a fuel preheating system. The fuel preheating system warms up the fuel and thereby improves its flow characteristics.

## Fuel additives

- !** Do not use fuel additives. Fuel additives can cause malfunctions and engine damage. Do not add any gasoline, paraffin or flow improver to the diesel fuel to improve flow characteristics. Such flow improvers reduce the lubricant properties of the diesel fuel. This can result in damage to the diesel injection system, for example.

## Information about fuel consumption

### 🌱 Environmental note

CO<sub>2</sub> (carbon dioxide) is the gas that according to the current state of knowledge is mainly responsible for the heating of the earth's atmosphere (greenhouse effect). The CO<sub>2</sub> emissions of your vehicle vary in direct correspondence with the fuel consumption and is therefore dependent on:

- the efficient utilization of the fuel by the engine
- the respective style of driving
- other non-technical factors, such as environmental influences, condition of the road or traffic flow, for example

You can help to minimize CO<sub>2</sub> emissions with a conservative driving style and regular maintenance of your vehicle .

- i** Only for certain countries: the respective current consumption and emission values of your vehicle can be found in the COC documents (EC CERTIFICATE OF CONFORMITY).

You will receive these documents on delivery of the vehicle.

## Alternative diesel fuels in accordance with DIN EN 15940

Observe the safety notes on service products. Alternative diesel fuels in accordance with DIN EN 15940 may be manufactured from:

- hydrotreated vegetable oils (HVO – Hydro-treated Vegetable Oils)
- biomass (BtL – Biomass-to-Liquid)
- natural gas (GtL – Gas-to-Liquid)
- coal (CtL – Coal-to-Liquid)

Your vehicle can be operated with pure alternative diesel fuels in accordance with DIN EN 15940 and mixtures of conventional diesel fuels and alternative diesel fuels in accordance with DIN EN 15940.

## Diesel Exhaust Fluid (DEF)

### Notes on DEF

- !** Only use DEF in accordance with DIN 70070/ISO 22241. Do not use any additives.

If DEF comes into contact with painted or aluminum surfaces when filling the tank, rinse the affected area immediately with plenty of water.

It may be against regulations or, in some countries, liable to prosecution if a vehicle is operated without DEF or with DEF that does not correspond with the specifications in these Operating Instructions.

If the DEF tank still contains enough DEF, pressure compensation may occur when the tank lid is unscrewed. DEF may spill out as a result. Therefore, open the DEF tank lid carefully. If DEF spills out, immediately wash the affected area with plenty of water.

DEF is a non-flammable, non-toxic, colorless and odorless, water-soluble liquid.

When opening the DEF tank, small amounts of ammonia vapors can escape.

Ammonia vapors have a pungent smell and are particularly irritating to:

- skin
- mucous membranes
- eyes

The vapors may cause a burning sensation in the eyes, nose and throat as well as irritation of the throat and watering eyes.

Avoid inhaling ammonia vapors. Only fill the DEF tank in well-ventilated areas.

DEF should not come into contact with skin, eyes or clothing, and should not be swallowed. Keep DEF out of the reach of children.

If you come into contact with DEF, observe the following:

- Immediately wash DEF from your skin with water and soap.
- If DEF comes into contact with your eyes, rinse your eyes with clean water immediately. Consult a doctor without delay.
- If you have swallowed DEF, immediately rinse your mouth with water and drink plenty of water. Consult a doctor without delay.
- Immediately change out of clothing which has come into contact with DEF.

### High outside temperatures

The chemical composition of DEF can break down if it heats up to 122 °F (50 °C) over a long period, e.g. as a result of direct sunlight on the tank. This creates ammonia vapor.

### Low outside temperatures

DEF freezes at a temperature of approximately 12 °F (-11 °C). Depending on equipment and country, the DEF supply system of the vehicle may be heated. Winter operation is therefore also ensured for temperatures below 12 °F (-11 °C).

### Additives, tap water

**!** Do not mix any additives with DEF. Do not dilute DEF with tap water. This could result in malfunctioning of the emissions control system.

### Storage

**!** Containers made of the following materials are not suitable for storing DEF:

- aluminum
- copper
- copper-bearing alloys
- unalloyed steel
- galvanized steel

If you store DEF in such containers, components of these metals may detach themselves and destroy the exhaust gas after-treatment system.

To store DEF, use only containers made of the following materials:

- Cr-Ni steel in accordance with DIN EN 10 088-1/2/3
- Mo-Cr-Ni steel in accordance with DIN EN 10 088-1/2/3
- Polypropylene
- Polyethylene

### Disposal

#### Environmental note

Dispose of DEF in an environmentally responsible manner.

Observe country-specific laws and regulations when disposing of DEF.

### Purity

**!** Impurities in DEF, e.g. due to other service products, cleaning products or dust, may lead to:

- Increased emissions values
- Damage to the catalytic converter
- Engine damage
- Exhaust gas aftertreatment malfunctions

Ensure that DEF is always pure to avoid malfunctions in the exhaust gas aftertreatment.

If DEF is pumped from the tank, e.g. during repairs, do not use this to refill the tank. Otherwise, the purity of the fluid would no longer be guaranteed.

## Operating data

### Compressed-air system

Minimum pressures	in kPa
Brake circuit 1	680
Brake circuit 2	680
Brake circuit 3	550
Transmission circuit/clutch circuit	650
Spring-loaded parking brake cylinder release pressure	650

Reservoir pressures	in kPa
Service brake (EAPU)	1050 - 1360
Service brake (APU)	900 - 1060
Pneumatic suspension	1050 - 1550
External compressed-air source (EAPU) (charging the compressed-air system)	1100 - 1250
External compressed-air source (APU) (charging the compressed-air system)	950 - 1000
Remaining pressure circuits	700 - 870

### Engine

OM 936 diesel engine: idling speed	Approximately 600 rpm
Engine brake (operating range)	Approximately 1000 - 3000 rpm
Engine speed range of maximum torque	Approximately 1200 - 1600 rpm
OM 936 diesel engine: speed at maximum engine power output	Approximately 2200 rpm

### Operating temperature

Normal operation	Approximately 176 - 212 °F
Maximum permissible coolant temperature	Up to 217 °F
Automatically reduced engine power output	From 217 °F

### Tire pressures

Tire pressure table for single tires	(▷ page 196)
Tire pressure table for twin tires	(▷ page 196)
Permissible difference in pressure between tires on an axle	20 kPa (0.2 bar/3 psi)
Maximum permissible air pressure for inflating tires	1000 kPa (10.0 bar/145 psi)

### Wheel nut tightening torques

Light-alloy wheels	445 lb-ft (600 Nm)
Steel wheels	445 lb-ft (600 Nm)

### Spring-loaded cylinder

Release torque of the spring-loaded parking brake cylinder release screw	Maximum 52 lb-ft
Tightening torque of the spring-loaded parking brake cylinder release screw	Maximum 26 lb-ft
Release pressure (with external source of compressed air)	Minimum 650 kPa

### Level control

Fill the air suspension via connection 28 on the electronic pressure supply unit

Maximum  
1250 kPa

## Compressed-air reservoir

### Information on the compressed-air reservoir

For the initial purchaser and other users

Accompanying documentation in accordance with Directive 2009/105/EC of the European Parliaments and Council and in accordance with the technical standard EN 286-2.

The reservoir is:

- a only intended for use in compressed-air systems and auxiliary equipment on motor vehicles and their trailers, and is only to be used to hold compressed air.
- b to be marked for identification with a works number and the reservoir manufacturer's name, together with the principal operating data and the EC mark; see the identification plate or engravings directly on the reservoir wall.
- c to be manufactured with a "Declaration of conformity" in accordance with Article 12 of Directive 2009/105/EC.
- d to be secured to the vehicle by retaining straps (clamps).

In the case of aluminum reservoirs, contact surfaces must be designed to inhibit corrosion or mechanical damage. Securing straps are to be positioned in such a way that they do not come in contact with the base connecting seams; the reservoir is not to be subjected to any stress that would jeopardize operating safety.

Coatings applied to aluminum reservoirs must not contain lead, and the top coat of paint must only be applied over a suitable primer coat. Steel threaded connections for aluminum reservoirs must have a corrosion-proof coating.

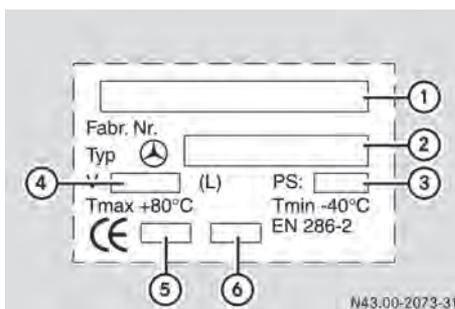
- only to be cleaned using non-alkaline cleaning agents (aluminum reservoirs).
- to have the interior visible through the threaded connections.

- to be emptied at regular intervals to prevent the accumulation of condensation (drainage ring nut at the lowest point of the reservoir).
- e to require no maintenance if item d is complied with.
- f – no welding, heat treatment or other operation relevant to safety is to be performed on the pressure-bearing walls of the reservoir (casing, base, ring nuts).
- g the internal supply pressure may exceed the maximum operating pressure  $P_s$  by no more than 10% for a brief period.

Daimler AG

### Compressed-air reservoir identification plates

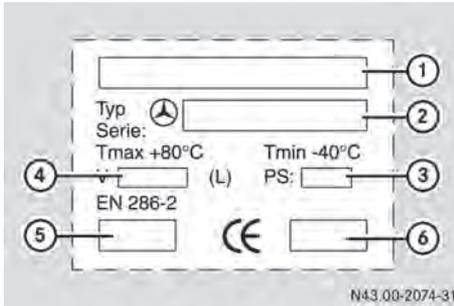
#### Aluminum reservoir



Identification plate, compressed-air reservoir (example: aluminum reservoir)

- ① Manufacturer: SAG (Austria)
- ② MB part number
- ③ Maximum operating pressure (bar)
- ④ Volume (liters)
- ⑤ Testing establishment code number
- ⑥ Year of construction

## Steel reservoir



Identification plate, compressed-air reservoir  
(example: steel tank)

- ① Manufacturer:  
Frauenthal Automotive  
Erhard
- ② MB part number
- ③ Maximum operating pressure (bar)
- ④ Volume (liters)
- ⑤ Year of construction
- ⑥ Testing establishment code number



## Publication details

### Internet

Further information on Freightliner trucks can be found at:

<http://www.Daimler-TrucksNorthAmerica.com>

<http://www.FreightlinerTrucks.com>

or write to Econic Support at the following address:

### Econic Support

Daimler Trucks North America LLC  
Service Systems and Documentation (CVI-SSD)  
P.O. Box 3849  
Portland, Oregon 97208-3849

### Documentation team

Should you have any questions or suggestions regarding these Operating Instructions, you can reach the technical documentation team at the address listed on the inside cover page.

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### Vehicle manufacturer

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